D-901 BI-SYNC SUPPORT PACKAGE AND PROGRAM LIBRARY

USER'S GUIDE

Spectron Instruction Manual
4038093-001 Issue 1 June 1983

nt northern telecom

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SECTION 1

INTRODUCTION

1.1 The D-901 Bi-Sync Support Package is designed to give the user both proven programs and ideas on program development.

1.2 In addition to instructions on loading and execution of programs, Section 1 provides information on a number of network protocols.

1.3 Section 2 contains proven programs, with a description of the purpose of each program. Most of the programs are for monitoring only. They are used to acquire information such as response time to a general poll, history of response times, percentage of productive polls, etc. (see Table of Contents). The last four programs are used to simulate a terminal or modem. When in the TO MODEM configuration, the D-901 is acting as the terminal; when in the TO TERMINAL configuration, it is acting as the modem.

1.4 Users who wish to write their own programs or to modify programs contained in this library should refer to the D-901 Operator's Manual, Section 6.

1.5 EXECUTION OF PROGRAMS

1.6 How to Load and Execute Programs Against the Data Diskette:

1.7 In the program listing, choose which program is to be compiled.

1.8 Insert the BI-SYNC Support **System** Diskette in the system disk (right-hand) drive. Insert the **Data** Diskette in the data disk drive (closest to CRT), and power unit on.

1.9 Once the prompt, ENTER CMD: , is displayed in the lower left-hand corner of the CRT, enter **GP,** space bar, and the name of the program desired (GP RESP 2). Press the ENTER KEY to load the program and the configuration table.

1.10 Now reset the track indicator to track one (1). Determine the replay speed (slow: 50 bps, medium: 1200 bps, fast: 4800 bps, or configuration). If configuration is the replay speed selected, the replay speed will be determined by speed setting in the configuration table.

1.11 Position the MODE toggle switch to Run/Prog. The program will stop under program control or when the switch is repositioned to STOP.

1.12 3270 PROTOCOL

1.13 While 3270 Protocol provides for asynchronous transmission and point-to-point operation, the dominant protocol application is for synchronous transmission on multi-drop data links. In this configuration, a central HOST controls all transmissions by POLLING or SELECTING remote STATIONS and their attached DEVICES. All transmission activity consists of POLLS or SELECTS, COMMANDS from the HOST, DATA-LINK CONTROL SEQUENCES, and MESSAGES, which obey a predetermined set of rules—the PROTOCOL. (see Figure 1—1, 3270 Line Control Sequences Chart)

1.14 POLLS incorporate station poll addresses (SPA) and device addresses (GDA or DA) to invite transmission from any station device (GENERAL POLL) or a specific device (SPECIFIC POLL). The polled station responds with a message or 'No Traffic Response' (EOT data-link control sequence).

1.15 SELECTS incorporate station select addresses (SSA) and device addresses (DA) to request permission to send a command or message to the addressed station/device. Permission is granted (ACK0) or a reason is given (WACK or RVI).

1.16 COMMANDS are used to WRITE a message to the device, READ a message from the device, or CONTROL the device, e.g., copy the CRT buffer to the printer. Commands are defined by ESC sequences (see Table 1—1, 3270 Addressing and Control Characters Chart) and may contain special COMMAND CHARACTERS, ORDERS, and text. (see Table 1—2, 3270 Message Formats Chart)

1.17 MESSAGES from the station/device incorporate their addresses (SPA & DA) as well as text and special characters, e.g., AID, SENSE & STATUS, AC, and BUFFER or CURSOR ADDRESSES. Messages are used to keep the host informed of device status, ask for help, and respond to the host's request for job-related information.

1.18 DATA-LINK CONTROL SEQUENCES are used to assure everyone that they are being understood properly so that communications may continue—or that something isn't going according to plan and provide a means of recovery.

1.19 ERROR DETECTION

1.20 3270 PROTOCOL supports transmission using either 7-bit ASCII or 8-bit EBCDIC codes. Commands and messages (but not data-link control sequences) make use of a special BCC character (or characters) to verify that the transmission has been error free. BCC is

calculated beginning with the first character following the first SOH or STX character of the transmission and includes the ETB or ETX character which ends the transmission. SYN characters may be inserted into the message as it is being sent and **after** the BCC is computed. For this reason SYN is ignored when checking BCC for transmission errors.

1.21 **ASCII**

1.22 An 8th bit is appended to the 7-bit character as an error check (VRC). (This bit makes character parity **odd** for synchronous transmission or **even** for asynchronous transmission.)

1.23 The BCC is a single character (parity per above) called the LRC. Each LRC bit value is set to make the corresponding bits of all checked characters, taken as a group, be of even parity.

NOTE

VRC and LRC together permit detection and correction of any single-bit error. However, it is common practice to ignore parity and use LRC alone to detect errors.

1.24 **EBCDIC**

1.25 Since all eight bits are used for characters, no VRC or parity is employed. The BCC consists of two characters calculated using the CRC/16 polynomial; this makes undetected transmission errors virtually impossible.

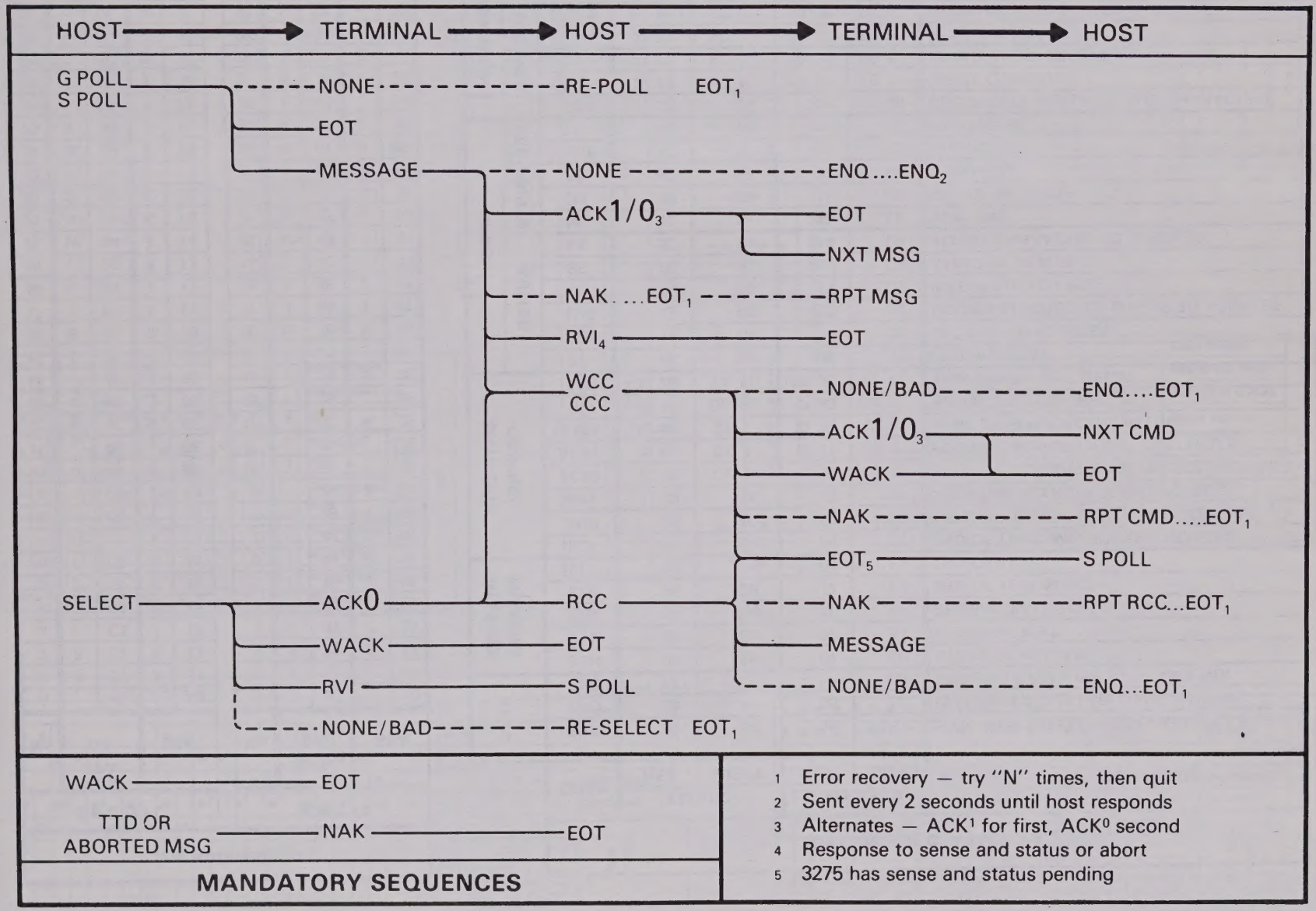

Figure [illegible] 3270 Line Control Sequences Chart.

Table 1—1. 3270 Addressing and Control Characters Chart.

3270 ADDRESSING

EBCDIC					ASCII				
No	SPA DA		SSA		No	SPA DA		SSA	
0		40		60	0		20		2D
1	A	C1	/	61	1	A	41	/	2F
2	B	C2	S	E2	2	B	42	S	53
3	C	C3	T	E3	3	C	43	T	54
4	D	C4	U	E4	4	D	44	U	55
5	E	C5	V	E5	5	E	45	V	56
6	F	C6	W	E6	6	F	46	W	57
7	G	C7	X	E7	7	G	47	X	58
8	H	C8	Y	E8	8	H	48	Y	59
9	I	C9	Z	E9	9	I	49	Z	5A
10	¢	4A	¦	6A	10	[	5B	¦	7C
11	.	4B	,	6B	11	.	2E	,	2C
12	<	4C	%	6C	12	<	3C	%	25
13	(	4D	_	6D	13	(	28	_	5F
14	+	4E	>	6E	14	+	2B	>	3E
15	|	4F	?	6F	15	!	21	?	3F
16	&	50	0	F0	16	&	26	0	30
17	J	D1	1	F1	17	J	4A	1	31
18	K	D2	2	F2	18	K	4B	2	32
19	L	D3	3	F3	19	L	4C	3	33
20	M	D4	4	F4	20	M	4D	4	34
21	N	D5	5	F5	21	N	4E	5	35
22	O	D6	6	F6	22	O	4F	6	36
23	P	D7	7	F7	23	P	50	7	37
24	Q	D8	8	F8	24	Q	51	8	38
25	R	D9	9	F9	25	R	52	9	39
26	!	5A	:	7A	26	]	5D	:	3A
27	$	5B	#	7B	27	$	24	#	23
28	*	5C	@	7C	28	*	2A	@	40
29	)	5D	'	7D	29	)	29	'	27
30	;	5E	=	7E	30	;	3B	=	3D
31	¬	5F	"	7F	31	↑	5E	"	22
GDA FOR GENERAL POLLS									

3270 CONTROL CHARACTERS

		CHAR	EBCDIC HEX	EBCDIC DISPY	7 BIT ASCII HEX	7 BIT ASCII DISPY	CHARACTER USAGE
SYNC		SYN	32	SY	16	SY	SYN SYN ESTABLISHES CHARACTER SYNC
		PAD	55	N	55	U	LEADING PAD ESTABLISHES BIT SYNC
		PAD	FF	"	FF	DT	TRAILING PAD (LINE TURN-AROUND)
MESSAGE FRAMING		SOH	01	SH	01	SH	START OF HEADER
		STX	02	SX	02	SX	START OF TEXT
		ITB	1F	US	1F	US	INTERMEDIATE TEXT BLOCK
		ETB	26	EB	17	EB	END OF TEXT BLOCK
		ETX	03	EX	03	EX	END OF TEXT
DATA-LINK CONTROL		EOT	37	ET	04	ET	END OF TRANSMISSION (NO TRAFFIC)
		ENQ	2D	EQ	05	EQ	ENQUIRE (REPEAT LAST TRANSMISSION)
		NAK	3D	NK	15	NK	NEGATIVE ACKNOWLEDGE (BAD BCC)
		ACK0	10 70	DL 0	10 30	DL 0	POSITIVE ACKNOWLEDGE (SELECT/EVEN MSG)
		ACK1	10 61	DL /	10 31	DL 1	POSITIVE ACKNOWLEDGE (ODD MSG'S)
		WACK	10 6B	DL ,	10 3B	DL ;	WAIT (POSITIVE ACKNOWLEDGE)
		RVI	10 7C	DL @	10 3C	DL <	REVERSE INTERRUPT
		TTD	02 2D	SX EQ	02 05	SX EQ	TEMPORARY TEXT DELAY
ORDERS	BUFFER	PT	05	HT	09	HT	PROGRAM TAB
		SBA	11	D1	11	D1	SET BUFFER ADDRESS
		EUA	12	D2	12	D2	ERASE UNPROTECTED BUFFER TO ADDRESS
		IC	13	D3	13	D3	INSERT CURSOR HERE
		SF	1D	IG	1D	GS	START OF NEW FIELD
		RA	3C	D4	14	D4	REPEAT CHARACTER TO ADDRESS
	PRINTR	NL	15	NL	0A	LF	NEW LINE
		EM	19	EM	19	EM	END OF MESSAGE
		FF	0C	FF	0C	FF	FORM FEED
	KBD	DUP	1C	IF	1C	FS	DUPLICATE
		FM	1E	IR	1E	RS	FIELD MARK
		SUB	3F	SB	1A	SB	SUBSTITUTE (REPLACES BAD CHARACTER)
COMMANDS	WCC	ESC 1	27 F1	EC 1	1B 31	EC 1	WRITE COMMAND
		ESC 5	27 F5	EC 5	1B 35	EC 5	ERASE/WRITE COMMAND
	RCC	ESC 2	27 F2	EC 2	1B 32	EC 2	READ BUFFER
		ESC 6	27 F6	EC 6	1B 36	EC 6	READ MODIFIED BUFFER
	CCC	ESC 7	27 F7	EC 7	1B 37	EC 7	COPY
		ESC ?	27 6F	EC ?	1B 3F	EC ?	ERASE ALL UNPROTECTED

Key Depressed	AID
S/R	'
PA1	%
PA2	>
R/TST	0
PF1	1
PF2	2
PF3	3
PF4	4
PF5	5
PF6	6
PF7	7
PF8	8
PF9	9
PF10	:
PF11	#
PF12	@
CLEAR	—
none, KD	-
none, P	Y

WCC							
				Print			
Start Printer	Sound KD Tone	Put KD in LOCAL	Reset ACs to Unmodified	NL char/line	40 char/line	64 char/line	80 char/line
				SP	&	-	0
			●	A	J	/	1
		●		B	K	S	2
		●	●	C	L	T	3
	●			D	M	U	4
	●		●	E	N	V	5
	●	●		F	O	W	6
	●	●	●	G	P	X	7
●				H	Q	Y	8
●			●	I	R	Z	9
●		●		[	]	¦	:
●		●	●	.	$	,	#
●	●			<	*	%	@
●	●		●	(	)	—	'
●	●	●		+	;	>	=
●	●	●	●	¦	^	?	"

Specify Field as					ACC Option 403a or b			
Protected‡	Numeric	Hidden	Highlighted*	Modified				
					SP	D	B	F
				●	A	E	C	G
			●		H	[		
			●	●	I	.		
		●			<	+		
		●		●	(	!		
	●				&	M	K	O
	●			●	J	N	L	P
	●		●		Q	]		
	●		●	●	R	$		
	●	●			*	,		
	●	●		●	)	^		
●					-	U	S	W
●				●	/	V	T	X
●			●		Y	¦		
●			●	●	Z	:		
●		●			%	>		
●		●		●	—	?		
●	●				0	4	2	6
●	●			●	1	5	3	7
●	●		●		8	~		
●	●		●	●	9	#		
●	●	●			@	=		
●	●	●		●	'	"		

Status & Sense (S & S)					
Only on Specific Poll	S S_1	S S_2	On Gen'l/Spec Poll	S S_1	S S_2
Invalid Command	SP	A	Device No Longer Busy	B	SP
Device Unavailable	SP	&	Printer Paper Out	B	&
Command not Valid for Device	SP	-	Internal Timing Error	SP	B
Device Busy	H	SP	Block Forward Abort	SP	D
From Device Busy	H	A			
From Device Unavailable	SP	J			
Locked Buffer	D	A			

Orders	
Set Buffer Address	DC1 B B A_1 A_2
Start Field	GA SC
Insert Cursor	DC3
Program Tab	HT
Repeat to Address	DC4 B B A_1 A_2 C
Erase Unprotected to Address	DC2 B B A_1 A_2

CCC								
		Copy			Print			
Start Printer	Sound KD Tone	ACs	Protected Data	Unprotected Data	NL char/line	40 char/line	64 char/line	80 char/line
		●			SP	&	-	0
		●		●	A	J	/	1
		●	●		B	K	S	2
		●	●	●	C	L	T	3
	●	●			D	M	U	4
	●	●		●	E	N	V	5
	●	●	●		F	O	W	6
	●	●	●	●	G	P	X	7
●		●			H	Q	Y	8
●		●		●	I	R	Z	9
●		●	●		[	]	¦	:
●		●	●	●	.	$	,	#
●	●	●			<	*	%	@
●	●	●		●	(	)	—	'
●	●	●	●		+	;	>	=
●	●	●	●	●	¦	^	?	"

Specify Field as						ACC Option 403c			
Protected‡	Numeric	Hidden	Blinked‡	Intensified‡	Modified				
						SP	D	B	F
					●	A	E	C	G
				●		H			
				●	●	I			
			●			[			
			●		●				
		●				<	+		
		●			●	(	!		
	●					&	M	K	O
	●				●	J	N	L	P
	●			●		Q			
	●			●	●	R			
	●		●			[			
	●		●		●	$			
	●	●				*			
	●	●			●	)	^		
●						-	U	S	W
●					●	/	V	T	X
●				●		Y			
●				●	●	Z			
●			●			¦			
●			●		●	,			
●		●				%	>		
●		●			●	—	?		
●	●					0	4	2	6
●	●				●	1	5	3	7
●	●			●		8			
●	●			●	●	9			
●	●		●						
●	●		●		●	#			
●	●	●				@	=		
●	●	●			●	'	"		

Figure 1—2. 40/4 ASCII Control Characters.

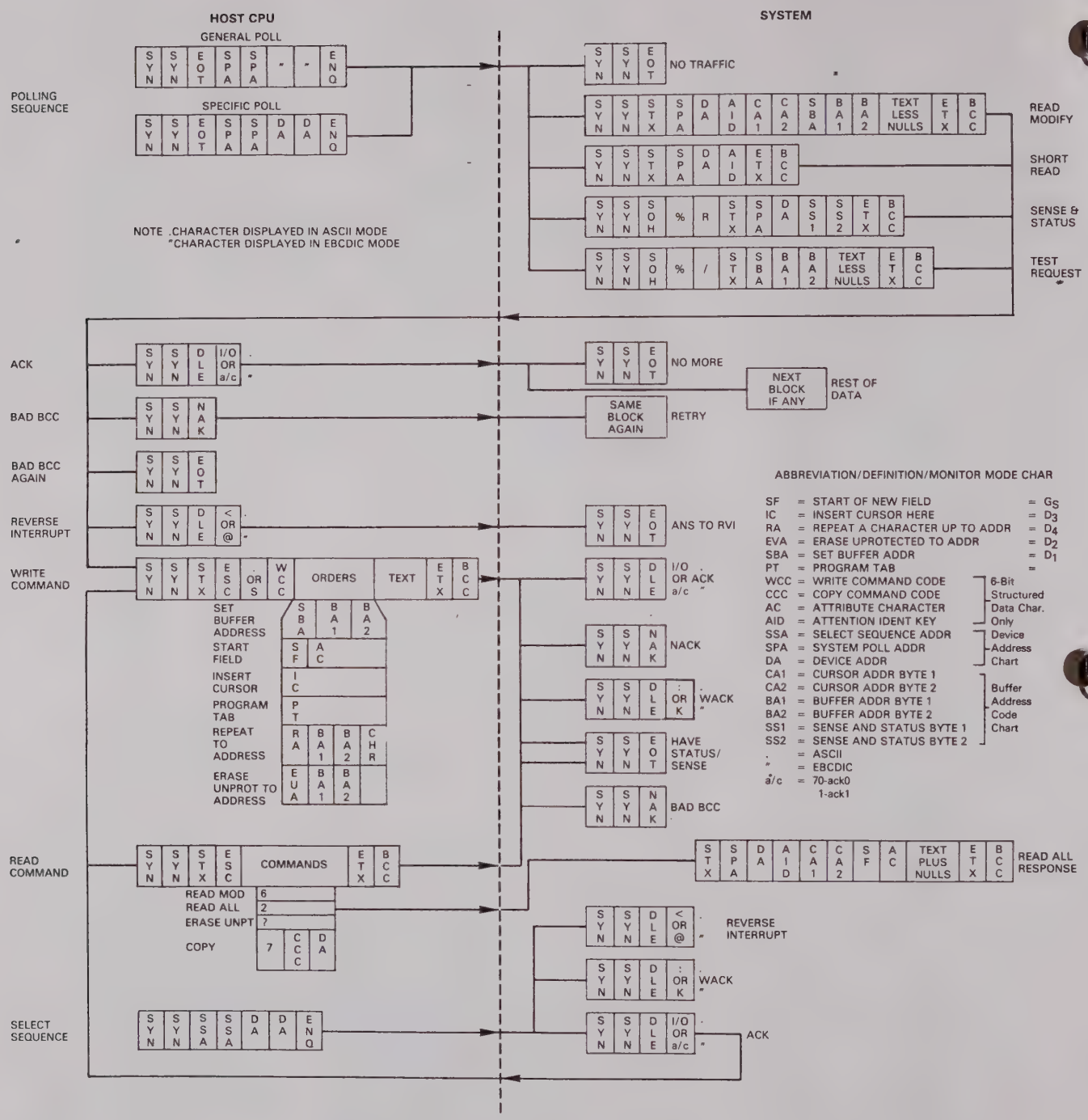

Figure 1—3. Protocol Diagram.

GENERAL POLL	P S S E P S S S S G G E P A Y Y O A Y Y P P D D N A D N N T D N N A A A A Q D	ANY DEVICE AT SPA MAY SEND
SPECIFIC POLL	P S S E P S S S S D D E P A Y Y O A Y Y P P A A N A D N N T D N N A A Q D	DEVICE DA AT SPA MUST SEND
SELECT SEQUENCE	P S S E P S S S S D D E P A Y Y O A Y Y S S A A N A D N N T D N N A A Q D	WILL DEVICE DA AT SPA LISTEN?
WRITE COMMAND	P S S S E W A Y Y T S 1 C ORDERS TEXT E B P D N N X C C T C A X C D	WRITE THIS MESSAGE
ERASE/WRITE COMMAND	P S S S E W A Y Y T S 5 C ORDERS TEXT E B P D N N X C C T C A X C D	ERASE, THEN WRITE THIS MESSAGE
READ BUFFER COMMAND	P S S S E E B P A Y Y T S 2 T C A D N N X C X C D	SEND YOUR ENTIRE BUFFER
READ MODIFIED COMMAND	P S S S E E B P A Y Y T S 6 T C A D N N X C X C D	SEND YOUR NEWEST INPUT DATA
COPY COMMAND	P S S S E C D E B P A Y Y T S 7 C A T C A D N N X C C X C D	COPY FROM DA USING FORMAT CCC
ERASE ALL UNPROTECTED	P S S S E E B P A Y Y T S ? T C A D N N X C X C D	ERASE ALL UNPROTECTED BUFFER
SHORT READ	P S S S S D A E B P A Y Y T P A I T C A D N N X A D X C D	SENT IF CLEAR OR PA KEY HIT
SENSE & STATUS	P S S S S S D S S E B P A Y Y O % R T P A S S T C A D N N H X A 1 2 X C D	STATUS IS PENDING /ERROR/UNAVAIL
TEST REQUEST	P S S S S S B B E B P A Y Y O % T B A A TEXT T C A D N N H X A 1 2 X C D	READ MODIFIED SENT VIA FUNCT KEY
READ MODIFIED BUFFER	P S S S S D A C C S B B E B P A Y Y T P A I A A B A A TEXT T C A D N N X A D 1 2 A 1 2 X C D	MODIFIED BUFF SENT VIA PF OR ENTER
READ ALL RESPONSE	P S S S S D A C C S A E B P A Y Y T P A I A A F C TEXT T C A D N N X A D 1 2 X C D	ENTIRE BUFF SENT FOR DIAGNOSTICS
ABORTED MESSAGE	P S S S S E P A Y Y T TEXT U TEXT N A D N N X B Q D	SUB REPLACES CHAR WITH BAD PARITY
DATA-LINK CONTROLS	P S S D P A Y Y L A D N N C D	DLC IS 1 or 2 CHARS (e.g., NAK, ACK0)

SPA STATION POLL ADDRESS SSA STATION SELECT ADDRESS GDA GENERAL DEVICE ADDRESS DA DEVICE ADDRESS	CA1 CA2 CURSOR ADDRESS BA1 BA2 BUFFER ADDRESS SS1 SS2 SENSE & STATUS	AC FIELD ATTRIBUTE CODE AID ATTENTION KEY IDENTIFY CCC COPY COMMAND CODE WCC WRITE COMMAND CODE
BCC 2 BYTE CRC FOR EBCDIC OR 1 BYTE LRC FOR ASCII		TEXT + / (WITH WITHOUT NULLS)

Table 1—2. 3270 Message Formats Chart.

SECOND HEX DIGIT	FIRST HEX DIGIT							
	8	9	A	B	C	D	E	F
	0	1	2	3	4	5	6	7
0	NU	DL		0	@	P	`	P
1	SH	D1	!	1	A	Q	A	Q
2	SX	D2	"	2	B	R	B	R
3	EX	D3	#	3	C	S	C	S
4	ET	D4	$	4	D	T	D	T
5	EQ	NK	%	5	E	U	E	U
6	AK	SY	&	6	F	V	F	V
7	BL	EB	'	7	G	W	G	W
8	BS	CN	(	8	H	X	H	X
9	HT	EM	)	9	I	Y	I	Y
A	LF	SB	*	:	J	Z	J	Z
B	VT	EC	+	;	K	[	K	{
C	FF	FS	,	<	L	\	L	¦
D	CR	GS	-	=	M	]	M	}
E	SO	RS	.	>	N	↑	N	~
F	SI	US	/	?	O	←	O	DT

ASCII CODE

CONTROL CHARACTERS

NUL	NULL CHARACTER	DLE	DATA LINK ESCAPE (DC0)
SOH	START OF HEADING	DC1	DEVICE CONTROL 1 (XON)
STX	START OF TEXT	DC2	DEVICE CONTROL 2 (RON)
ETX	END OF TEXT	DC3	DEVICE CONTROL 3 (XOFF)
EOT	END OF TRANSMISSION	DC4	DEVICE CONTROL 4 (ROFF)
ENQ	ENQUIRY (WRU)	NAK	NEGATIVE ACKNOWLEDGE
ACK	ACKNOWLEDGE (RU)	SYN	SYNCHRONOUS IDLE
BEL	BELL	ETB	END TRANSMISSION BLOCK
BS	BACKSPACE	CAN	CANCEL
HT	HORIZONTAL TAB	EM	END OF MEDIUM
LF	LINE FEED	SUB	SUBSTITUTE
VT	VERTICAL TAB	ESC	ESCAPE
FF	FORM FEED	FS	FILE SEPARATOR
CR	CARRIAGE RETURN	GS	GROUP SEPARATOR
SO	SHIFT OUT	RS	RECORD SEPARATOR
SI	SHIFT IN	US	UNIT SEPARATOR
		DEL	(DT) DELETE

ODD PARITY: 1ST DIGIT = 0-7

EVEN PARITY: 1ST DIGIT = 8-F

EBCDIC CODE

UNDEFINED CODES (SHADED CHARACTERS) ARE DISPLAYED AS SHOWN OR IN HEX

SECOND HEX DIGIT	FIRST HEX DIGIT 0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NU•	DL•	DS	30		&	-	0		&	-	0		&	-	0
1	SH•	D1•	SS	31	A	J	/	1	A	J	/	1	A	J	/	1
2	SX•	D2•	FS	SY•	B	K	S	2	B	K	S	2	B	K	S	2
3	EX•	D3•	23	33	C	L	T	3	C	L	T	3	C	L	T	3
4	PF	RE	BP	PN	D	M	U	4	D	M	U	4	D	M	U	4
5	HT•	NL	LF•	RS	E	N	V	5	E	N	V	5	E	N	V	5
6	LC	BS•	EB•	UC	F	O	W	6	F	O	W	6	F	O	W	6
7	DT•	IL	EC•	ET•	G	P	X	7	G	P	X	7	G	P	X	7
8	08	CN•	28	38	H	Q	Y	8	H	Q	Y	8	H	Q	Y	8
9	09	EM•	29	39	I	R	Z	9	I	R	Z	9	I	R	Z	9
A	MM	CC	SM	3A	¢	!	▮A	:	¢	!	▮A	:	¢	!	▮A	:
B	VT•	1B	2B	3B	.	$	,	#	.	$	,	#	.	$	,	#
C	FF•	IF	2C	D4•	<	*	%	@	<	*	%	@	<	*	%	@
D	CR•	IG	EQ•	NK•	(	)	_	'	(	)	_	'	(	)	_	'
E	SO•	IR	AK•	3E	+	;	>	=	+	;	>	=	+	;	>	=
F	SI•	US	BL•	SB•	|	¬	?	"	|	¬	?	"	|	¬	?	"

HEX	OTHER CHAR
09	RLF
13	TM
1B	CU1
27	PRE
2B	CU2
3B	CU3
6A	¦
79	`
A1	~
C0	{
CC	⌠
CE	⌡
D0	}
E0	\
EC	┤
FA	| .

BP	BP	BYPASS	FS	FS	FIELD SEPARATOR	IL	IL	IDLE	RE	RES	RESTORE
CC	CC	CURSOR CONTROL	IF	IFS	INFO FIELD SEP	NL	NL	NEW LINE	MM	SMM	START MANUAL MESSAGE
DS	DS	DIGIT SELECT	IG	IGS	INFO GROUP SEP	PF	PF	PUNCH OFF	SM	SM	SET MADE
LC	LC	LOWER CASE	IR	IRS	INFO RECORD SEP	PN	PN	PUNCH ON	SS	SOS	START OF SIGNIFICANCE
UC	UC	UPPER CASE	US	IUS	INFO UNIT SEP	RS	RS	READER STOP		•	SEE ASCII CHART

PROGRAM DESCRIPTION INDEX

2.1	RESP1	Response Time for One Poll.
2.2	RESP2	Average Response Time to Poll.
2.3	RESP3	Response Time Greater Than X.
2.4	RESP4	Data Response Time.
2.5	RESP5	History of Response Time to Poll.
2.6	RESP6	History of Data Response Time.
2.7	TEXT1	Number of Text Messages From Up to Seven Different 3270 Controllers on Line. Also Logs, but Does Not Count, Messages with a Bad BCC Check.
2.8	TEXT2	Number of Text Messages to Up to Seven Different 3270 Controllers on a Line.
2.9	TEXT3	Number of Text Messages Sent to a Host. Can Also Determine Their Average Length.
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2.13	BCC	Look for Bad BCC on Received Messages and Count Them.
2.14	LOGGING	Log all Receive Messages.
2.15	3270	Output a General Poll and Look for EOT Response. If No Response Within Two Seconds, Reissue Poll. Counts the Number of Polls and the Number of EOT Responses.
2.16	3270T	Host Emulator Interacting with a Single 3270 Controller with One Device.
2.17	3270M	Host Emulator Interacting with a Single 3270 Controller with Up to Ten Devices.
2.18	3270MC	Host Emulator Interacting with Multiple 3270 Controllers with Up to Ten Devices on Each Controller.

2.1 PROGRAM DESCRIPTION

PROGRAM NAME: RESP1

CONFIGURATION NAME: RESP1

OBJECTIVE: Determine actual response time to one general poll.

RESULTS:

TIM will contain the response time for a general poll issued to a 3270 type controller.

Controller address = "40"

DESCRIPTION:

SEQ 3-4	Wait for general poll.
SEQ 5-10	Wait for EOT response.
SEQ 11	Stop program and timer #1 with response results.
SEQ 16	If response not received in 60 seconds, put error message on D-901 screen and stop program.

```
                PROGRAM LIST

NAME=RESP1     M=0994 MSG=4096  RMRK=0985

SEQ LABEL OPCODE      OPERAND

001       RTMR ALL

002 BEGIN TRCV

003 LOOP  SKIP 1

004       MATCH OR LOOP  ""E
                           Q
005       SEMRK

006 LOOP1 TIME 1   ERR   IF 59.999

007       TSND

008       SKIP 1

009       SEMRK

010       MATCH OR LOOP1 E
                         T
011       STMR 1

012       SEMRK

013       RMRK RESPONSE TIME IN "TIM"

014       SKIP 100

015       STIM

016 ERR   RMRK NOT REC.IN 60 SEC

017       STIM
```

2.2 PROGRAM DESCRIPTION

PROGRAM NAME: RESP2

CONFIGURATION NAME: RESP2

OBJECTIVE: Determine average response time to general poll.

RESULTS:

TIM = Total Response Time

TOT = Total Number of Polls

DESCRIPTION:

SEQ 4-5	Wait for general poll.
SEQ 7-13	Wait for response and increment and check Timer #1.
SEQ 14	Check to see if test is over.
SEQ 16-18	Minimum counter for overall timer.

```
                PROGRAM LIST

NAME=RESP2    M=0978 MSG=4096  RMRK=0973

SEQ LABEL OPCODE     OPERAND

001       RMRK PROGRAM: RESP2

002       RCTR ALL

003       RTMR ALL

004 LP5   TRCV

005 LP1   SKIP 1

006       MATCH OR LP1      ""E
                              Q
007       TSND

008 LP4   TIME 1   CNT    IF 59.999

009       SKIP 1

010       MATCH OR LP2    E
                          T
011       GOTO     END

012 LP2   MATCH OR LP3    S
                          X
013       GOTO     END

014 LP3   MATCH OR LP4    S
                          H
015 END   ICTR 1   END1   IF 100

016       GOTO     LP5

017 CNT   ICTR 2   ERR    IF 59999

018       RTMR 1

019       GOTO     LP5

020 ERR   RMRK MIN COUNTER OVERFLOW

021       SKIP 25

022       STIM

023 END1  RMRK RESP2 COMPLETED

024       SKIP 25

025       STIM
```

2.3 PROGRAM DESCRIPTION

PROGRAM NAME: RESP3

CONFIGURATION NAME: RESP3

OBJECTIVE: Check the response time against an "X" value.

RESULTS:

TOT = Total Number of Polls

The program will stop if a response time of 1 second is found.

DESCRIPTION:

SEQ 3-4	Wait for general poll to be sent.
SEQ 5	Start the response time.
SEQ 6-12	Wait for a response.
SEQ 17	Check the response against "X"; if greater, go to stop.

PROGRAM LIST

```
NAME=RESP3    M=0978 MSG=4096  RMRK=0965
SEQ LABEL OPCODE     OPERAND
001       RMRK PROGRAM: RESP3
002       RTMR ALL
003       RCTR ALL
004 BEGIN TRCV
005 LP1   SKIP 1
006       MATCH OR LP1      ""E
                             Q
007 LP2   TIME 1   ERR    IF 59.999
008       TSND
009       SKIP 1
010       MATCH OR LP3    E
                          T
011       GOTO      CHECK
012 LP3   MATCH OR LP4    S
                          X
013       GOTO      CHECK
014 LP4   MATCH OR LP2    S
                          H
015       *
016       * ***SET TIMER TO X VALUE ***
017       *
018 CHECK TIME 1   ERR    IF 01.000
019       *                   < X  >
020       *                    VALUE
021       RTMR 1
022       ICTR 1   STOP   IF 10000
023       GOTO      BEGIN
024 ERR   RMRK RESPONSE TIME >X FOUND
025       SKIP 25
026       STIM
027 STOP  RMRK RESP TIME >X NOT FOUND
028       RTMR ALL
029       SKIP 100
030       STIM
```

2.4 PROGRAM DESCRIPTION

PROGRAM NAME: RESP4

CONFIGURATION NAME: RESP4

OBJECTIVE: Determine average response time to a text message from a particular device. This measures the time between a request being initiated from a device and the end of the text message response to that device.

RESULTS:

MIN and SEC = Total Response Time

TOT = Total Number of Responses Checked

DESCRIPTION:

SEQ 3-5	Wait for a text message from the device being tested. If the user wishes he can go to a specific AID key.
SEQ 6-9	Start the timer and wait for a select poll to the device.
SEQ 10-12	Wait for an ETX to be sent.
SEQ 14	Count the response and test it against "X".
SEQ 16-21	Minimum counter loops for the response timer.

PROGRAM LIST

```
NAME=RESP4     M=0967 MSG=4096  RMRK=0974

SEQ LABEL OPCODE     OPERAND

001       RMRK PROGRAM: RESP4

002       RTMR ALL

003       RCTR ALL

004 BEGIN TSND

005 LP1   SKIP 1

006       MATCH OR LP1   S
                         X
007 LP2   TIME 1   CNT   IF 59.999

008       TRCV

009       SKIP 1

010       MATCH OR LP2   66  E
                         00  Q
011 LP3   SKIP 1

012       TIME 1   CNT1  IF 59.999

013       MATCH OR LP3   E
                         X
014       STMR 1

015       ICTR 2   STOP  IF 100

016       GOTO     BEGIN

017 CNT   ICTR 1   ERR   IF 65535

018       RTMR 1

019       GOTO     LP2

020 CNT1  ICTR 1   ERR   IF 59999

021       RTMR 1

022       GOTO     LP3

023 ERR   RMRK MIN COUNTER OVERFLOW

024       SKIP 25

025       STIM

026 STOP  RMRK TEST COMPLETED

027       SKIP 25

028       STIM
```

2.5 PROGRAM DESCRIPTION

PROGRAM NAME: RESP5

CONFIGURATION NAME: RESP5

OBJECTIVE: Give the user a history of response times.

RESULTS:

MIN and SEC	= Total run time of program.	
X	= Actual response time.	
TOT	= Total number of responses tested.	
2.5	= X > 2.5 seconds	Results in different counters provide the history of response times
2.0	= 2 < X < 2.5	
1.5	= 1.5 < X < 2	
1.0	= 1 second < X < 1.5 seconds	
0.5	= .5 < X < 1 second	
.5	= X < .5 second	

DESCRIPTION:

SEQ 3-6	Start overall timer, and wait for a poll to be sent.
SEQ 7-15	Wait for the response to come in.
SEQ 18-37	Find out which "window" the response time fits into.
SEQ 38-43	Minimum counters for overall timer.

PROGRAM LIST

```
NAME=RESP5     M=0941 MSG=4096  RMRK=0975
SEQ LABEL OPCODE     OPERAND
001       RMRK PROGRAM: RESP5
002       RCTR ALL
003       RTMR ALL
004 BEGIN TIME 1   CNT1  IF 59.999
005       TRCV
006       SKIP 1
007       MATCH OR BEGIN ""E
                           Q
008 LP4   TIME 2   RP3   IF 59.999
009       TSND
010       SKIP 1
011       MATCH OR LP1   E
                         X
012       GOTO     END
013 LP1   MATCH OR LP2   S
                         X
014       GOTO     END
015 LP2   MATCH OR LP3   S
                         H
016       GOTO     END
017 LP3   TIME 1   CNT2  IF 59.999
018       GOTO     LP4
019 END   STMR 2
020       ICTR 2   ERR   IF 59999
021       TIME 2   RP7   IF 00.500
022       ICTR 8   ERR   IF 59999
023 RTN   RTMR 2
024       GOTO     BEGIN
025 RP7   TIME 2   RP6   IF 01.000
026       ICTR 7   ERR   IF 59999
027       GOTO     RTN
```

```
028 RP6   TIME 2   RP5   IF 01.500
029       ICTR 6   ERR   IF 59999
030       GOTO     RTN
031 RP5   TIME 2   RP4   IF 02.000
032       ICTR 5   ERR   IF 59999
033       GOTO     RTN
034 RP4   TIME 2   RP3   IF 03.000
035       ICTR 4   ERR   IF 59999
036       GOTO     RTN
037 RP3   ICTR 3   ERR   IF 59999
038       GOTO     RTN
039 CNT1  ICTR 1   STOP  IF 60
040       RTMR 1
041       GOTO     BEGIN
042 CNT2  ICTR 1   STOP  IF 60
043       RTMR 1
044       GOTO     LP3
045 ERR   RMRK COUNTER OVERFLOW
046       SKIP 25
047       STIM
048 STOP  RMRK PROGRAM COMPLETED
049       SKIP 25
050       STIM
```

2.6 PROGRAM DESCRIPTION

PROGRAM NAME: RESP6

CONFIGURATION NAME: RESP6

OBJECTIVE: Give the user a history of response times to text messages.

RESULTS: See RESP 5

DESCRIPTION: See RESP5

```
                PROGRAM LIST

NAME=RESP6     M=0939 MSG=4096  RMRK=0990

SEQ LABEL OPCODE     OPERAND

001       RCTR ALL

002       RTMR ALL

003 BEGIN TIME 1   CHK1  IF 59.999

004       TSND

005       SKIP 1

006       MATCH OR BEGIN SAA%
                         X
007       TIME 2   ERR   IF 59.999

008       TRCV

009 LP1   SKIP 1

010 LP2   TIME 1   CHK2  IF 59.999

011       MATCH OR LP1   AABB

012       SKIP 1

013       TIME 2   LAST  IF 59.999

014       MATCH OR LP2   E
                         X
015       STCK 02

016       TIME 2   GT1   IF 01.000

017       ICTR 2   ERR   IF 59999

018 BACK  RTMR 2

019       GOTO     BEGIN

020 GT1   TIME 2   GT2   IF 02.000

021       ICTR 3   ERR   IF 59999

022       GOTO     BACK

023 GT2   TIME 2   GT3   IF 03.000

024       ICTR 4   ERR   IF 59999

025       GOTO     BACK

026 GT3   TIME 3   GT4   IF 04.000

027       ICTR 5   ERR   IF 59999
```

```
028         GOTO     BACK
029 GT4     TIME 2   LAST   IF 05.000
030         ICTR 6   ERR    IF 59999
031         GOTO     BACK
032 LAST    ICTR 7   ERR    IF 59999
033         GOTO     BACK
034 CHK1    ICTR 1   END    IF 60
035         RTMR 1
036         GOTO     BEGIN
037 CHK2    ICTR 1   END    IF 60
038         RTMR 1
039         GOTO     LP2
040 ERR     RMRK COUNTER OVERFLOW
041         SKIP 25
042         STIM
043 END     RMRK PROGRAM COMPLETED
044         SKIP 25
045         STIM
```

2.7 PROGRAM DESCRIPTION

PROGRAM NAME: TEXT1

CONFIGURATION NAME: TEXT1

OBJECTIVE: Count the number of text messages from seven different devices. The program also tests BCC and logs any bad messages. These messages are also not included in the total count.

RESULTS:

MIN and SEC	= Overall timer.
C#1	= The number of messages from Controller #1.
C#2	= The number of messages from Controller #2.
C#3	= The number of messages from Controller #3.
C#4	= The number of messages from Controller #4.
C#5	= The number of messages from Controller #5.
C#6	= The number of messages from Controller #6.
C#7	= The number of messages from Controller #7.

DESCRIPTION:

SEQ 1-6	Wait for a text message to be received.
SEQ 7-10	Start logging BCC accumulation, and stack the address.
SEQ 11-13	Wait for the end of text.
SEQ 15-16	Check BCC; if good, abort logging.
SEQ 17-23	Find out which address the message came from; if from none of the ones being tested, try again.
SEQ 25-26	Save the log entry for a bad BCC.
SEQ 27-40	Increment the counters for the text message.

```
                PROGRAM LIST

NAME=TEXT1     M=0918 MSG=4096  RMRK=0977

SEQ LABEL OPCODE      OPERAND

001       RMRK PROGRAM: TEXT1

002       RCTR ALL

003       RTMR ALL

004 BEGIN TIME 1    CNT    IF 59.999

005       TRCV

006       SKIP 1

007       MATCH OR BEGIN SSS
                         YYX
008       SKIP 1

009       BLOG      BCC

010       SBCC

011       STCK 02

012 LP1   TIME 1    CNT1   IF 59.999

013       SKIP 1

014       MATCH OR LP1    E
                          X
015       SKIP 1

016       TBCC      BAD

017       ALOG

018       MSTCK GO INC1   44
                          00
019       MSTCK GO INC2   C4
                          10
020       MSTCK GO INC3   C4
                          20
021       MSTCK GO INC4   C4
                          30
022       MSTCK GO INC5   C4
                          40
023       MSTCK GO INC6   C4
                          50
024       MSTCK GO INC7   C4
                          60
025       GOTO      BEGIN

026 BAD   ELOG

027       GOTO      BEGIN
```

```
028 INC1   ICTR 2    ERR    IF 59999
029        GOTO      BEGIN
030 INC2   ICTR 3    ERR    IF 59999
031        GOTO      BEGIN
032 INC3   ICTR 4    ERR    IF 59999
033        GOTO      BEGIN
034 INC4   ICTR 5    ERR    IF 59999
035        GOTO      BEGIN
036 INC5   ICTR 6    ERR    IF 59999
037        GOTO      BEGIN
038 INC6   ICTR 7    ERR    IF 59999
039        GOTO      BEGIN
040 INC7   ICTR 8    ERR    IF 59999
041        GOTO      BEGIN
042 ERR    RMRK COUNTER OVERFLOW
043        SKIP 25
044        STIM
045 CNT    ICTR 1    END    IF 60
046        RTMR 1
047        GOTO      BEGIN
048 CNT1   ICTR 1    END    IF 60
049        RTMR 1
050        GOTO      LP1
051 END    RMRK PROGRAM COMPLETED
052        SKIP 25
053        STIM
```

2.8 PROGRAM DESCRIPTION

PROGRAM NAME: TEXT2

CONFIGURATION NAME: TEXT2

OBJECTIVE: Count the number of text messages sent to up to seven different 3270-type controllers.

RESULTS:

MIN and SEC = Overall timer.
C#1 = The number of messages to Controller #1.
C#2 = The number of messages to Controller #2.
C#3 = The number of messages to Controller #3.
C#4 = The number of messages to Controller #4.
C#5 = The number of messages to Controller #5.
C#6 = The number of messages to Controller #6.
C#7 = The number of messages to Controller #7.

DESCRIPTION:

SEQ 6-33	Look for select to controllers.
SEQ 34-38	Find ACK0 response. If not received in .5 second, cancel search.
SEQ 39-42	Find beginning of message to controller selected.
SEA 6-33	Count message.

```
                PROGRAM LIST

NAME=TEXT2     M=0916 MSG=4096  RMRK=0957

SEQ LABEL OPCODE     OPERAND

001       *
002       * THIS PROGRAM WILL COUNT THE
003       * NUMBER OF TEXT MESSAGES SENT
004       * TO UP TO SEVEN (7) DIFFERENT
005       * 3270 TYPE CONTROLLERS
006       *
007 START RCTR ALL
008       RTMR ALL
009       RMRK **** PROGRAM: TEXT2 ****
010 BEGIN TIME 1   CNT   IF 59.999
011       TSND
012       SKIP 1
013       MATCH OR TEST2
014       GOSUB    WAIT
015       ICTR 2   ERR   IF 59999
016       GOTO     BEGIN
017 TEST2 MATCH OR TEST3 AA
018       GOSUB    WAIT
019       ICTR 3   ERR   IF 59999
020       GOTO     BEGIN
021 TEST3 MATCH OR TEST4 BB
022       GOSUB    WAIT
023       ICTR 4   ERR   IF 59999
024       GOTO     BEGIN
025 TEST4 MATCH OR TEST5 CC
026       GOSUB    WAIT
027       ICTR 5   ERR   IF 59999
```

```
028         GOTO      BEGIN
029 TEST5   MATCH OR  TEST6 DD
030         GOSUB     WAIT
031         ICTR 6    ERR   IF 59999
032         GOTO      BEGIN
033 TEST6   MATCH OR  TEST7 EE
034         GOSUB     WAIT
035         ICTR 7    ERR   IF 59999
036         GOTO      BEGIN
037 TEST7   MATCH OR  BEGIN FF
038         GOSUB     WAIT
039         ICTR 8    ERR   IF 59999
040         GOTO      BEGIN
041 WAIT    TIME 1    CNT1  IF 59.999
042         TIME 2    NOGO  IF 00.500
043         TRCV
044         SKIP 1
045         MATCH OR  WAIT  17
                            00
046         TSND
047         FIND S
                  X
048         RTMR 2
049         RET
050 NOGO    SITMR     CLEAR IF 00.002
051         SKIP 20
052 CLEAR   RTMR 2
053         GOTO      BEGIN
054 CNT     ICTR 1    STOP  IF 60
055         RTMR 1
056         GOTO      BEGIN
057 CNT1    ICTR 1    STOP  IF 60
```

```
058         RTMR 1
059         GOTO     WAIT
060 STOP    RMRK PROGRAM COMPLETED
061         SKIP 25
062         STIM
063 ERR     RMRK MESSAGE COUNTER OVERFLOW
064         SKIP 25
065         STIM
```

2.9 PROGRAM DESCRIPTION

PROGRAM NAME: TEXT3

CONFIGURATION NAME: TEXT3

OBJECTIVE: Count the number of text messages sent to the host and determine their average length.

RESULTS:

MIN and SEC = Overall timer.
C#2 = Number of text messages received.
C#3 = Number of characters in text message.
C#4 = Number of characters in text message × 59999.

$$\text{Average message length} = \frac{\text{CNT \#4} \times 59999 + \text{CNT \#3}}{\text{CTN \#2}}$$

DESCRIPTION:

SEQ 4-6	Find start of message.
SEQ 7	Count messages.
SEQ 8-12	Count characters in message and look for ETX.

```
                PROGRAM LIST

NAME=TEXT3     M=0984 MSG=4096  RMRK=0991

SEQ LABEL OPCODE     OPERAND

001 START RCTR ALL

002       RTMR ALL

003 LP1   TIME 1   CNT   IF 59.999

004       TRCV

005       SKIP 1

006       MATCH OR LP1   S
                         X
007       ICTR 2   ERR   IF 59999

008 LP3   SKIP 1

009       MATCH OR LP2   E
                         X
010       GOTO     LP1

011 LP2   ICTR 3   ADCNT IF 59999

012       GOTO     LP3

013 CNT   ICTR 1   STOP  IF 60

014       GOTO     LP1

015 ERR   RMRK COUNTER OVERFLOW

016       SKIP 25

017       STIM

018 ADCNT ICTR 4   ERR   IF 59999

019       RCTR 3

020       GOTO     LP3

021 STOP  RMRK RPOGRAM COMPLETED

022       SKIP 25

023       STIM
```

2.10 PROGRAM DESCRIPTION

PROGRAM NAME: MISC1

CONFIGURATION NAME: MISC1

OBJECTIVE: Give the percentage of productive polls.

RESULTS:

MIN and SEC = Total run time of the program.
TOT = Total number of general polls sent.
TEX = Number of responses which include text data.

DESCRIPTION:

SEQ 1-6	A wait loop looking for a general poll to be sent. This loop also starts and checks the overall timer.
SEQ 7	When a poll is found, counter 2 is incremented.
SEQ 8-15	A wait loop looking for either an EOT or a STX to be received. If a STX is located, counter 3 is incremented and the program returns to wait for the next poll. If an EOT is found, the program will return without incrementing any counters.
SEQ 16-18	Minimum counter with maximum setting of 60.

```
                PROGRAM LIST

NAME=MISC1     M=0978 MSG=4096  RMRK=0964

SEQ LABEL OPCODE     OPERAND

001       *
002       * THIS PROGRAM IS DESIGNED TO
003       * CALCULATE THE NUMBER OF
004       * PRODUCTIVE POLLS IN RELATION
005       * TO THE TOTAL NUMBER OF POLLS
006       *
007       RMRK **** PROGRAM: MISC1 ****
008       RCTR ALL
009       RTMR ALL
010 LP1   TIME 1   CNT   IF 59.999
011       TRCV
012       SKIP 1
013       MATCH OR LP1   77E
                         FFQ
014       ICTR 2   ERR   IF 59999
015       TSND
016       FIND S
               Y
017 LP2   SKIP 1
018       MATCH OR LP3   S
                         X
019       ICTR 3   ERR   IF 59999
020       GOTO     LP1
021 LP3   MATCH OR LP2   E
                         T
022       GOTO     LP1
023 CNT   ICTR 1   STOP  IF 60
024       RTMR 1
025       GOTO     LP1
026 STOP  RMRK PROGRAM COMPLETED
027       SKIP 25
028       STIM
029 ERR   RMRK COUNTER OVERFLOW
030       SKIP 25
031       STIM
```

2.11 PROGRAM DESCRIPTION

PROGRAM NAME: MISC2

CONFIGURATION NAME: MISC2

OBJECTIVE: Identify a remote modem with RTS/CTS delay longer than .500 msec. This program is also useful in locating a remote modem which is having long re-train sequences. Also will find a "streaming" device. (DCD delay).

RESULTS:

Set the time instruction at SEQ No. 13 to the longest acceptable value. If this time limit is exceeded, the program will halt.

DESCRIPTION:

SEQ 1-4	Wait for CD to go high.
SEQ 5-7	Starts the timer and waits for a sync character. (The time between CD going high and the first sync character being received is taken to be the RTS/CTS delay of the remote modem.)
SEQ 13	Checks for the timer x.
SEQ 17-19	Wait for an end of message character.
SEQ 20	Start the DCD delay timer.
SEQ 21-22	Wait for carrier to drop.
SEQ 24	Check for DCD delay x.

```
                PROGRAM LIST

NAME=MISC2     M=0970 MSG=4096  RMRK=0940

SEQ LABEL OPCODE     OPERAND

001       RMRK **** PROGRAM:MISC2 ****
002       RTMR ALL
003 START TRCV
004       SKIP 1
005       TSIG 7   TEST1 IF H
006       GOTO     START
007 TEST1 TIME 1   ERR   IF 59.999
008       SKIP 1
009       MATCH OR TEST1 S
                         Y
010       *
011       * SET THIS TIME (X)TO THE
012       * LONGEST ACCEPTABLE VALUE
013       TIME 1   RTS   IF 00.500
014       *                  <X VAL>
015       *
016       RTMR 1
017 LP2   SKIP 1
018       MATCH OR LP1   E
                         T
019       GOTO     TEST2
020 LP1   MATCH OR LP2   E
                         X
021 TEST2 TIME 1   ERR   IF 59.999
022       SKIP 1
023       TSIG 1   TEST2 IF L
024       TIME 1   DCD   IF 00.500
025       RTMR 1
026       GOTO     START
027 ERR   RMRK TIMER OVERFLOW
```

```
028         SKIP 25

029         STIM

030 RTS     RMRK RTS/CTS DELAY TOO LONG

031         SKIP 25

032         STIM

033 DCD     RMRK REC DCD DELAY TOO LONG

034         SKIP 25

035         STIM
```

2.12 PROGRAM DESCRIPTION

PROGRAM NAME: MISC3

CONFIGURATION NAME: MISC3

OBJECTIVE: Give line utilization information (full duplex).

RESULTS:

MIN and SEC = Overall program timer maximum 60 minutes.
SEN and SEN = Send data, non-idle time.
REC and REC = Receive data, non-idle time.

DESCRIPTION:

SEQ 4	Start and check the overall timer.
SEQ 5-11	Wait for other side of the line to go "non-idle".
SEQ 12-14	Send side timer.
SEQ 15-16	Receive side timer.
SEQ 17-28	A series of minimum counters for the different timers.

PROGRAM LIST

```
NAME=MISC3     M=0965 MSG=4096  RMRK=0967

SEQ LABEL OPCODE     OPERAND

001       RMRK **** PROGRAM:MISC3 ****

002       RCTR ALL

003       RTMR ALL

004 LP1   TIME 1   CNT   IF 59.999

005       TRCV

006       MATCH OR REC   F
                         F
007       STMR 3

008 LP2   TSND

009       MATCH OR SEND  F
                         F
010       STMR 2

011       SKIP 1

012       GOTO     LP1

013 SEND  TIME 1   CNT1  IF 59.999

014 S1    TIME 2   SCNT  IF 59.999

015       SKIP 1

016       GOTO     LP2

017 REC   TIME 3   RCNT  IF 59.999

018       SKIP 1

019       GOTO     LP1

020 CNT   ICTR 1   STOP  IF 60

021       RTMR 1

022       GOTO     LP1

023 CNT1  ICTR 1   STOP  IF 60

024       RTMR 1

025       GOTO     SEND

026 SCNT  ICTR 2   ERR   IF 59999

027       RTMR 2
```

```
028         GOTO     S1
029 RCNT    ICTR 3   ERR    IF 59999
030         RTMR 3
031         GOTO     REC
032 ERR     RMRK COUNTER OVERFLOW
033         SKIP 25
034         STIM
035 STOP    RMRK PROGRAM COMPLETE
036         SKIP 25
037         STIM
```

2.13 PROGRAM DESCRIPTION

PROGRAM NAME: BCC*

CONFIGURATION NAME: BCC

OBJECTIVE: Find a received message with one or more bad CRC calculations and count them. Also the program logs all bad CRC calculations.

RESULTS:

TOT = Total # MSGS
OK! = # MSGS with good BCC
BAD = # MSGS with bad BCC

DESCRIPTION:	SEQ 3-6	Find STX or SOH.
	SEQ 8	Begin BCC calculation.
	SEQ 9-12	Find ETX or ETB.
	SEQ 14	Calculate the CRC.
	SEQ 16	Increment Counter #1 if CRC is bad.

NOTE: If command: "SL ENTER" is executed, just the bad CRC calculation will be displayed.

```
                PROGRAM LIST

NAME=BCC        M=0982 MSG=4096  RMRK=1003

SEQ LABEL OPCODE      OPERAND

001       RMRK **** PROGRAM:BCC ****

002       RTMR ALL

003       RCTR ALL

004 START TRCV

005 LOOK  SKIP 1

006       MATCH OR LOOP  S
                         X
007       GOTO      CHECK

008 LOOP  MATCH OR LOOK  S
                         H
009 CHECK SKIP 1

010       BLOG      BCC

011       ICTR 1    STOP  IF 0

012       SBCC

013 LOOK1 SKIP 1

014       MATCH OR LOOK2 E
                         X
015       GOTO      ERROR

016 LOOK2 MATCH OR LOOK1 1
                         7
017 ERROR SKIP 3

018       TBCC      RMSG

019       ALOG

020       ICTR 2    STOP  IF 0

021       GOTO      START

022 RMSG  ICTR 3    STOP  IF 50

023       ELOG

024       GOTO      START

025 STOP  STIM
```

2.14 PROGRAM DESCRIPTION

PROGRAM NAME: LOGGING

CONFIGURATION NAME: LOGGING

OBJECTIVE: Store all received text messages in the log buffer.

RESULTS:

All received text messages will be sequentially stored in the log buffer.

DESCRIPTION:

SEQ 1-5	Find STX or SOH.
SEQ 6	Begin logging the text message.
SEQ 7-10	Find ETX or ETB.
SEQ 12	Find ETX or ETB.

NOTE: Set log display ("SLD" command) before executing program.

```
                PROGRAM LIST

NAME=LOGGING  M=1000 MSG=4096  RMRK=1001

SEQ LABEL OPCODE     OPERAND

001       RMRK *** PROGRAM:LOGGING ***

002 START TRCV

003 TEST  SKIP 1

004       MATCH OR LOOK  S
                         X
005       GOTO     LOGG

006 LOOK  MATCH OR TEST  S
                         H
007 LOGG  BLOG     MSG

008 TEXT  SKIP 1

009       MATCH OR LOOK1 E
                         X
010       GOTO     ELOGG

011 LOOK1 MATCH OR TEXT  1
                         7
012 ELOGG SKIP 3

013       ELOG

014       GOTO     START
```

2.15 PROGRAM DESCRIPTION

PROGRAM NAME: 3270

CONFIGURATION NAME: 3270

OBJECTIVE: Output a general poll to a 3270 control unit and look for an EOT response. If no response is received within 2 seconds, poll will be reissued.

RESULTS:

POL = Number of polls sent.
EOT = Number of EOT responses received.

CONTROLLER ADDRESS "40".

DESCRIPTION:	SEQ 11-13	Output poll and count.
	SEQ 14-17	Find EOT response; if not found in 2 seconds, reissue poll.
	SEQ 18	Count EOT responses received.

```
                PROGRAM LIST

NAME=3270       M=1005 MSG=4083  RMRK=1002

SEQ LABEL OPCODE      OPERAND

001       *
002       * OUTPUT A GENERAL POLL TO A
003       * 3270 CONTROL UNIT AND LOOK
004       * FOR AN EOT RESPONSE.  UNIT
005       * WILL POLL EVERY 2 SEC IF NO
006       * EOT RESPONSE IS RECEIVED
007       *
008       RMRK **** PROGRAM:3270 ****
009       RCTR ALL
010 START RITMR
011       OUT       RST   01
012       OUT       STEXT 01
013       ICTR 1    STOP  IF 10000
014       TSND
015       SITMR     START IF 02.000
016 LOOP1 SKIP 1
017       MATCH OR LOOP1 E
                         T
018       ICTR 2    STOP  IF 10000
019       GOTO      START
020 RST   MSG   SSSEF
                YYYTF
021 STEXT MSG   SSS  ""E
                YYY    Q
022 STOP  STIM
```

2.16 PROGRAM DESCRIPTION

PROGRAM NAME: 3270T

CONFIGURATION NAME: 3270T

OBJECTIVE: Provide complete emulation to a 327X-type device. This program will send general polls to a specific controller and handle any response from that terminal. If the response is a sense and status message, the D-901 will decode and display in English language the sense and status information on the remark line.

If the operator at the terminal depresses any "aid" key (enter, PA1, PF2, PF3, etc.) the D-901 will send a message back to the terminal. The message will tell the operator which key was depressed. If the test request key is depressed, the D-901 will send a test message to the device with a protected field, blinking field, numeric field, etc.

RESULTS:

This program can be used as an on-line demo or diagnostic routine.
(Controller ADDR — '40' Device ADDR — '40')

DESCRIPTION:	SEQ 7-18	Issue general poll and look for negative or positive response.
	SEQ 29-32	Determine if sense and status information or test required key depressed.
	SEQ 40-51	Decode sense and status information.
	SEQ 52-89	Display sense and status information to D-901 remark line.
	SEQ 90-156	Check BCC, message length, if text message should be sent, send ACK0 and ACK1 in proper sequence, etc.
	SEQ 157-176	Define which aid key was depressed.
	SEQ 255-303	Program error recovery to unusual events.

```
                PROGRAM LIST

NAME=3270T     M=0540 MSG=3545  RMRK=0438

SEQ LABEL OPCODE     OPERAND

001       *
002       * THIS PROGRAM IS A COMPLETE
003       * EMULATOR TO 327x TYPE DEVICE
004       *
005       RCTR ALL
006       RTMR ALL
007 START OUT      GPOLL 01
008 LOOP1 TSND
009       TIME 1   GERR  IF 01.000
010       SKIP 1
011       MATCH OR TEXT1 E
                         T
012       GOTO     NTCT
013 TEXT1 MATCH OR TEXT2 S
                         H
014       GOTO     SS
015 TEXT2 MATCH OR TEXT3 S
                         X
016       GOTO     INMES
017 TEXT3 MATCH OR LOOP1 E
                         Q
018       GOTO     START
019 NTCT  TSIG 4   SEND  IF H
020       RTMR 1
021       GOTO     START
022 SEND  TCTR 4   SDMES IF 0
023       RCTR 1
024       GOTO     START
025 GERR  RMRK GEN.POLL TIMEOUT
026       RTMR 1
027       GOSUB    ALARM
```

```
028         GOTO      START
029 SS      SKIP 1
030         SEMRK
031         SBCC
032         MATCH OR TREQ  %R
033         SKIP 4
034         STCK 02
035         MATCH OR SSERR E
                           X
036         SKIP 3
037         SEMRK
038         TBCC      INC
039         RCTR 5
040         MSTCK GO INV     A
041         MSTCK GO DVC     &
042         MSTCK GO CNV     -
043         MSTCK GO DVB   H
044         MSTCK GO FDVB  HA
045         MSTCK GO FDVA   J
046         MSTCK GO LB    DA
047         MSTCK GO DVNB  B
048         MSTCK GO PRTO  B&
049         MSTCK GO ITE    B
050         MSTCK GO BFA    D
051         MSTCK GO BCC   A
052 SSERR RMRK INVALID S&S RECEIVED
053 ELOOP GOSUB    ALARM
054         OUT       RVI   01
055         RTMR 1
056         GOTO      LOOP1
057 INV   RMRK S&S REC. INVALID COMMAND
```

```
058         GOTO     ELOOP
059 DVC     RMRK S&S REC.DEVICE UNAVAIL.
060         GOTO     ELOOP
061 CNV     RMRK S&S REC.CMD. NOT VALID
062         GOTO     ELOOP
063 DVB     RMRK S&S REC. DEVICE BUSY
064         SCTR 4   1
065         GOTO     ELOOP
066 FDVB    RMRK S&S REC. FROM DEVICE BUSY
067         GOTO     ELOOP
068 FDVA    RMRK S&S REC. FROM DEVICE UNAV
069         GOTO     ELOOP
070 LB      RMRK S&S REC. LOCKED BUFFER
071         GOTO     ELOOP
072 DVNB    RMRK S&S REC. DEVICE NO LONGER
073         RCTR 4
074         GOTO     ELOOP
075 PRTO    RMRK S&S REC.PRINTER OUT
076         GOTO     ELOOP
077 ITE     RMRK S&S REC.INTERNAL TIME ERR
078         GOTO     ELOOP
079 BFA     RMRK S&S REC.BLOCK FORWARD ABT
080         GOTO     ELOOP
081 BCC     RMRK S&S REC.BCC ERROR
082         GOTO     ELOOP
083 TERR    GOTO     SSERR
084 INC     ICTR 5   TOO   IF 7
085         OUT      NAK   01
086         GOTO     LOOP1
087 TOO     RMRK 7 S&S REC. WITH BAD BCC
```

```
088         RCTR 5
089         GOTO     START
090 TREQ    MATCH OR TRQER /
091 CHK2    SKIP 1
092         MATCH OR CHK2  E
                           X
093         SKIP 3
094         TBCC     INC
095         OUT      ACK1  01
096         TIME 8   START IF 65.535
097         TSND
098         FIND E
                 T
099         GOTO     SDMES
100 TRQER   SKIP 1
101         MATCH OR TRQER E
                           X
102         GOTO     SSERR
103 INMES   RCTR 2
104         RCTR 1
105         RTMR 1
106         SKIP 1
107         SEMRK
108         SBCC
109         SKIP 2
110         SEMRK
111         TCTR 7   LOOP6 IF 1
112         STCK 01
113 LOOP6   MATCH OR LOOP2 1
                           7
114         SCTR 7   1
115         SKIP 3
116         TBCC     NAK1
117         RCTR 6
```

```
118         GOTO      LOOP4
119 LOOP2   MATCH OR  LOOP3 E
                            X
120         SKIP 3
121         SEMRK
122         TBCC      NAK1
123         RCTR 6
124         TCTR 7    FLRST IF 1
125         OUT       ACK1  01
126 LP11    TSND
127         FIND E
                      T
128         SEMRK
129         RCTR 7
130         GOSUB     SEL
131         GOTO      AID
132 FLRST   SCTR 7    2
133         GOTO      LOOP4
134 LOOP3   ICTR 2    LONG  IF 256
135         GOTO      LOOP7
136 LOOP4   TCTR 8    LOOP5 IF 1
137         OUT       ACK1  01
138         SCTR 8    1
139         TCTR 7    LP11  IF 2
140         GOTO      LOOP1
141 LOOP5   RCTR 8
142         OUT       ACK0  01
143         TCTR 7    LP11  IF 2
144         GOTO      LOOP1
145 NAK1    ICTR 6    ERR   IF 7
146 NAK2    OUT       NAK   01
147         GOTO      LOOP1
```

```
148 LONG  RMRK MESS. REC.>256 CHARS.
149       GOSUB    ALARM
150       GOTO     NAK2
151 ERR   RMRK BAD BCC REC. 7 TIMES
152       GOSUB    ALARM
153       GOTO     START
154 LOOP7 MATCH OR LP10  E
                         0
155       RMRK DATA CHECK FROM TERMINAL
156       GOTO     NAK1
157 AID   MSTCK GO A1    7
                         D
158       MSTCK GO A2    1
159       MSTCK GO A3    2
160       MSTCK GO A4    3
161       MSTCK GO A5    4
162       MSTCK GO A6    5
163       MSTCK GO A7    6
164       MSTCK GO A8    7
165       MSTCK GO A9    8
166       MSTCK GO A10   9
167       MSTCK GO A11   :
168       MSTCK GO A12   #
169       MSTCK GO A13   @
170       MSTCK GO A14   %
171       MSTCK GO A15   >
172       MSTCK GO A16   ,
173       MSTCK GO A17   6
                         D
174       MSTCK GO A18   0
175       RMRK UNDEFINED AID KEY REC.
176       GOTO     START
177 AID1  MSG  2171H1$- PF-01 E (2)
               7  D 1         X
```

```
178 AID2  MSG  2171H1$Z PF-02 E
               7  D 1         X
179 AID3  MSG  2171H1$3 PF-03 E
               7  D 1         X
180 AID4  MSG  2171H1$7 PF-04 E
               7  D 1 D       X
181 AID5  MSG  2171H1*G PF-05 E
               7  D 1         X
182 AID6  MSG  2171H1*J PF-06 E
               7  D 1         X
183 AID7  MSG  2171H1*$ PF-07 E
               7  D 1         X
184 AID8  MSG  2171H1*V PF-08 E
               7  D 1         X
185 AID9  MSG  2171H1*0 PF-09 E
               7  D 1         X
186 AID10 MSG  2171H1*9 PF-10 E
               7  D 1         X
187 AID11 MSG  2171H1)C PF-11 E
               7  D 1         X
188 AID12 MSG  2171H1)( PF-12 E
               7  D 1         X
189 AID13 MSG  2171H1)P PA-01 E
               7  D 1         X
190 AID14 MSG  2171H1)/ PA-02 E
               7  D 1         X
191 AID15 MSG  2171H1), PA-03 E
               7  D 1         X
192 AID16 MSG  2171H1)5 CLEAR E
               7  D 1         X
193 AID17 MSG  2171H1!& R/TST E
               7  D 1         X
194 AID29 MSG  2171H1!R ENTER E
               7  D 1         X
195 AID30 MSG  SSS
               YYX
196 A1    OUT      AID30 01
197       OUT      AID29 01    SB EB
198       GOTO     SD3
199 A2    OUT      AID30 01
200       OUT      AID1  01    SB EB
201       GOTO     SD3
202 A3    OUT      AID30 01
203       OUT      AID2  01    SB EB
204       GOTO     SD3
205 A4    OUT      AID30 01
206       OUT      AID3  01    SB EB
207       GOTO     SD3
```

```
208 A5     OUT      AID30 01
209        OUT      AID4  01    SB EB
210        GOTO     SD3
211 A6     OUT      AID30 01
212        OUT      AID5  01    SB EB
213        GOTO     SD3
214 A7     OUT      AID30 01
215        OUT      AID6  01    SB EB
216        GOTO     SD3
217 A8     OUT      AID30 01
218        OUT      AID7  01    SB EB
219        GOTO     SD3
220 A9     OUT      AID30 01
221        OUT      AID8  01    SB EB
222        GOTO     SD3
223 A10    OUT      AID30 01
224        OUT      AID9  01    SB EB
225        GOTO     SD3
226 A11    OUT      AID30 01
227        OUT      AID10 01    SB EB
228        GOTO     SD3
229 A12    OUT      AID30 01
230        OUT      AID11 01    SB EB
231        GOTO     SD3
232 A13    OUT      AID30 01
233        OUT      AID12 01    SB EB
234        GOTO     SD3
235 A14    OUT      AID30 01
236        OUT      AID13 01    SB EB
237        GOTO     SD3
```

```
238 A15   OUT      AID30 01
239       OUT      AID14 01     SB EB
240       GOTO     SD3
241 A16   OUT      AID30 01
242       OUT      AID15 01     SB EB
243       GOTO     SD3
244 A17   OUT      AID30 01
245       OUT      AID16 01     SB EB
246       GOTO     SD3
247 A18   OUT      AID30 01
248       OUT      AID17 01     SB EB
249       GOTO     SD3
250 SDMES GOSUB    SEL
251       SEMRK
252       TIME 8   OUTTR IF 00.010
253       RTMR 8
254       TIME 7   SD4   IF 00.010
255       GOTO     GOOD
256 GLOOP RTMR 1
257       RTMR 8
258       GOTO     LOOP1
259 SLP3  RMRK INVALID RESP. TO SELECT
260       GOSUB    ALARM
261       GOTO     GLOOP
262 SSDTA OUT      SPC   01
263       GOTO     GLOOP
264 GOOD  OUT      STMES 01
265       OUT      BMESS 01
266       RTMR 1
267       TSND
```

```
268 DERR  TIME 1   WRONG IF 01.000
269       SKIP 1
270       MATCH OR DERR  N
                         K
271       TIME 7   START IF 65.535
272       GOTO     SDMES
273 SD4   OUT      STMES 01
274       OUT      MES1  01    SB EB
275       WAIT
276       RTMR 7
277 SD3   TSND
278       SKIP 1
279       TIME 1   NGOOD IF 01.000
280       MATCH OR SD2   D
                         L
281       SKIP 1
282       MATCH OR SD5   ,
283 SD7   RTMR 1
284       RCTR 1
285       RTMR 8
286       GOTO     START
287 SD5   MATCH OR SD6   7
                         0
288       RMRK WRONG ACK RECEIVED
289       GOTO     SDMES
290 SD6   MATCH OR SD8   /
291       GOTO     SD7
292 SD2   MATCH OR SD3   E
                         T
293 SDNAK RMRK TEXT MESSAGE NAKED
294       GOTO     SD7
295 SD8   RMRK INVALID RESP.TO TEXT DATA
296       GOTO     SDMES
297 WRONG RMRK MESSAGE NOT NAKED
```

```
298         GOTO      SD7
299 SERR    RMRK TIMEOUT ON SELECT POLL
300         RTMR 1
301         GOSUB     ALARM
302         GOTO      START
303 LP10    SKIP 1
304         GOTO      LOOP6
305 NGOOD   RMRK NO RESPONSE TO TEXT DATA
306         GOTO      SD7
307 OUTTR   OUT       STMES 01
308         OUT       TREQM 01     SB EB
309         WAIT
310         RTMR 8
311         RTMR 1
312         GOTO      SD3
313 ALARM   ALRM
314         TIME 2    RSTAL IF 00.500
315         SKIP 1
316         GOTO      ALARM
317 RSTAL   RALRM
318         RTMR 2
319         RET
320 SEL     RCTR 1
321         OUT       SPOLL 01
322         RTMR 1
323         TSND
324 SEL1    TIME 1    SERR  IF 01.000
325         SKIP 1
326         MATCH OR SEL1  D
                           L
327         SKIP 1
```

```
328         MATCH OR SEL2  7
                           0
329         RET

330 SEL2    MATCH OR SEL3  @

331         GOTO     SSDTA

332 SEL3    MATCH OR SLP3  ,

333         RMRK WACK REC.TO SELECT

334         GOTO     SD7

335 GPOLL   MSG   SSEFFFSS  ""E
                  YYTFFFYY    Q
336 SPOLL   MSG   SSEFFFSS--  E
                  YYTFFFYY    Q
337 SPC     MSG   SS    E
                  YY    Q
338 RVI     MSG   SSD@
                  YYL
339 ACK1    MSG   SSD/
                  YYL
340 ACKO    MSG   SSD7
                  YYLO
341 NAK     MSG   SSN
                  YYK
342 STMES   MSG   SSS
                  YYX
343 BMESS   MSG   257 BAD MESSAGE E
                  7                X
344 TREQM   MSG   2571 A1-1+L1Y SPECTRON1&2
                  7  1   D 1  D          1
345               3270 TERMINAL     TEST1KB1
                                       1  D
346               -PROTECTED>11K; <1LK1-NUM
                             34    1  D
347               ERIC  >1&1L> 1-<1MS BLINK
                         D 4   D  1
348               ED  >1(01M= 1Y<1N2 INTENSI
                       D 4   D  1
349               FED>1H10+ 1-<1PB MODIFIED
                      D 4   D  1
350               >1A1P; 1-<E
                   D 4   D  X
351 MES1    MSG   2571 A1  *1(01+" 1+L1HSPE
                  7  1   4   1  4   1  D
352               CTRONE
                       X
```

2.17 PROGRAM DESCRIPTION

PROGRAM NAME: 3270M

CONFIGURATION NAME: 3270M

OBJECTIVE: Same as 3270T except that this program will support up to 10 devices on one control unit.

RESULTS:

This program can be used as an on-line demo or diagnostic routine.

Controller Address = '40'
Device Address = '40'
Device Address = 'C1'
Device Address = 'C2'
Device Address = 'C3'
Device Address = 'C4'
Device Address = 'C5'
Device Address = 'C6'
Device Address = 'C7'
Device Address = 'C8'
Device Address = 'C9'

DESCRIPTION: Sames as 3270T except as stated above.

```
                PROGRAM LIST

NAME=3270M     M=0481 MSG=3545  RMRK=0438

SEQ LABEL OPCODE     OPERAND

001       *
002       * THIS PROGRAM IS A COMPLETE
003       * EMULATOR TO 10 327x TYPE
004       * DEVICES
005       *
006       * CONTROLLER ADDRESS...40
007       * DEVICE ADDRESS.......40
008       *    "      "    .......C1
009       *    "      "    .......C2
010       *    "      "    .......C3
011       *    "      "    .......C4
012       *    "      "    .......C5
013       *    "      "    .......C6
014       *    "      "    .......C7
015       *    "      "    .......C8
016       *    "      "    .......C9
017       *
018       RCTR ALL
019       RTMR ALL
020 START OUT      GPOLL 01
021 LOOP1 TSND
022       TIME 1   GERR  IF 01.000
023       SKIP 1
024       MATCH OR TEXT1 E
                         T
025       GOTO     NTCT
026 TEXT1 MATCH OR TEXT2 S
                         H
027       GOTO     SS
```

```
028 TEXT2 MATCH OR TEXT3 S
                         X
029       GOTO     INMES
030 TEXT3 MATCH OR LOOP1 E
                         Q
031       GOTO     START
032 NTCT  TSIG 4   SEND  IF H
033       RTMR 1
034       GOTO     START
035 SEND  TCTR 4   SDMES IF 0
036       RCTR 1
037       GOTO     START
038 GERR  RMRK GEN.POLL TIMEOUT
039       RTMR 1
040       GOSUB    ALARM
041       GOTO     START
042 SS    SKIP 1
043       SEMRK
044       SBCC
045       MATCH OR TREQ  %R
046       SKIP 4
047       STCK 02
048       MATCH OR SSERR E
                         X
049       SKIP 3
050       SEMRK
051       TBCC     INC
052       RCTR 5
053       MSTCK GO INV    A
054       MSTCK GO DVC    &
055       MSTCK GO CNV    -
056       MSTCK GO DVB    H
057       MSTCK GO FDVB   HA
```

```
058         MSTCK GO FDVA   J
059         MSTCK GO LB     DA
060         MSTCK GO DVNB   B
061         MSTCK GO PRTO   B&
062         MSTCK GO ITE    B
063         MSTCK GO BFA    D
064         MSTCK GO BCC    A
065 SSERR   RMRK INVALID S&S RECEIVED
066 ELOOP   GOSUB    ALARM
067         OUT      RVI   01
068         RTMR 1
069         GOTO     LOOP1
070 INV     RMRK S&S REC. INVALID COMMAND
071         GOTO     ELOOP
072 DVC     RMRK S&S REC.DEVICE UNAVAIL.
073         GOTO     ELOOP
074 CNV     RMRK S&S REC.CMD. NOT VALID
075         GOTO     ELOOP
076 DVB     RMRK S&S REC. DEVICE BUSY
077         SCTR 4   1
078         GOTO     ELOOP
079 FDVB    RMRK S&S REC. FROM DEVICE BUSY
080         GOTO     ELOOP
081 FDVA    RMRK S&S REC. FROM DEVICE UNAV
082         GOTO     ELOOP
083 LB      RMRK S&S REC. LOCKED BUFFER
084         GOTO     ELOOP
085 DVNB    RMRK S&S REC. DEVICE NO LONGER
086         RCTR 4
087         GOTO     ELOOP
```

```
088 PRTO  RMRK S&S REC.PRINTER OUT
089       GOTO     ELOOP
090 ITE   RMRK S&S REC.INTERNAL TIME ERR
091       GOTO     ELOOP
092 BFA   RMRK S&S REC.BLOCK FORWARD ABT
093       GOTO     ELOOP
094 BCC   RMRK S&S REC.BCC ERROR
095       GOTO     ELOOP
096 TERR  GOTO     SSERR
097 INC   ICTR 5   TOO   IF 7
098       OUT      NAK   01
099       GOTO     LOOP1
100 TOO   RMRK 7 S&S REC. WITH BAD BCC
101       RCTR 5
102       GOTO     START
103 TREQ  MATCH OR TRQER /
104 CHK2  SKIP 1
105       MATCH OR CHK2  E
                         X
106       SKIP 3
107       TBCC     INC
108       OUT      ACK1  01
109       TIME 8   START IF 65.535
110       TSND
111       FIND E
               T
112       GOTO     SDMES
113 TRQER SKIP 1
114       MATCH OR TRQER E
                         X
115       GOTO     SSERR
116 INMES RCTR 2
117       RCTR 1
```

```
118         RTMR 1
119         SKIP 1
120         SEMRK
121         SBCC
122         SKIP 1
123         STCK 01
124         MSTCK GO ADDR1 A
125         MSTCK GO ADDR2 B
126         MSTCK GO ADDR3 C
127         MSTCK GO ADDR4 D
128         MSTCK GO ADDR5 E
129         MSTCK GO ADDR6 F
130         MSTCK GO ADDR7 G
131         MSTCK GO ADDR8 H
132         MSTCK GO ADDR9 I
133         RMC       SPOLL 11
134         RMC       SPOLL 12
135         GOTO      GO
136 ADDR1   RMC  A    SPOLL 11
137         RMC  A    SPOLL 12
138         GOTO      GO
139 ADDR2   RMC  B    SPOLL 11
140         RMC  B    SPOLL 12
141         GOTO      GO
142 ADDR3   RMC  C    SPOLL 11
143         RMC  C    SPOLL 12
144         GOTO      GO
145 ADDR4   RMC  D    SPOLL 11
146         RMC  D    SPOLL 12
147         GOTO      GO
```

```
148 ADDR5 RMC  E   SPOLL 11
149       RMC  E   SPOLL 12
150       GOTO     GO
151 ADDR6 RMC  F   SPOLL 11
152       RMC  F   SPOLL 12
153       GOTO     GO
154 ADDR7 RMC  G   SPOLL 11
155       RMC  G   SPOLL 12
156       GOTO     GO
157 ADDR8 RMC  H   SPOLL 11
158       RMC  H   SPOLL 12
159       GOTO     GO
160 ADDR9 RMC  I   SPOLL 11
161       RMC  I   SPOLL 12
162 GO    SEMRK
163       TCTR 7   LOOP6 IF 1
164       STCK 01
165 LOOP6 MATCH OR LOOP2 1
                         7
166       SCTR 7   1
167       SKIP 3
168       TBCC     NAK1
169       RCTR 6
170       GOTO     LOOP4
171 LOOP2 MATCH OR LOOP3 E
                         X
172       SKIP 3
173       SEMRK
174       TBCC     NAK1
175       RCTR 6
176       TCTR 7   FLRST IF 1
177       OUT      ACK1  01
```

```
178 LP11  TSND
179       FIND E
                T
180       SEMRK
181       RCTR 7
182       GOSUB     SEL
183       GOTO      AID
184 FLRST SCTR 7    2
185       GOTO      LOOP4
186 LOOP3 ICTR 2    LONG  IF 256
187       GOTO      LOOP7
188 LOOP4 TCTR 8    LOOP5 IF 1
189       OUT       ACK1  01
190       SCTR 8    1
191       TCTR 7    LP11  IF 2
192       GOTO      LOOP1
193 LOOP5 RCTR 8
194       OUT       ACK0  01
195       TCTR 7    LP11  IF 2
196       GOTO      LOOP1
197 NAK1  ICTR 6    ERR   IF 7
198 NAK2  OUT       NAK   01
199       GOTO      LOOP1
200 LONG  RMRK MESS. REC.>256 CHARS.
201       GOSUB     ALARM
202       GOTO      NAK2
203 ERR   RMRK BAD BCC REC. 7 TIMES
204       GOSUB     ALARM
205       GOTO      START
206 LOOP7 MATCH OR LP10  E
                         Q
207       RMRK DATA CHECK FROM TERMINAL
```

```
208         GOTO      NAK1

209 AID     MSTCK GO A1     7
                            D
210         MSTCK GO A2     1

211         MSTCK GO A3     2

212         MSTCK GO A4     3

213         MSTCK GO A5     4

214         MSTCK GO A6     5

215         MSTCK GO A7     6

216         MSTCK GO A8     7

217         MSTCK GO A9     8

218         MSTCK GO A10    9

219         MSTCK GO A11    :

220         MSTCK GO A12    #

221         MSTCK GO A13    @

222         MSTCK GO A14    %

223         MSTCK GO A15    >

224         MSTCK GO A16    ,

225         MSTCK GO A17    6
                            D
226         MSTCK GO A18    0

227         RMRK UNDEFINED AID KEY REC.

228         GOTO      START

229 AID1    MSG  2171H1$- PF-01 E
                 7  D 1         X
230 AID2    MSG  2171H1$Z PF-02 E
                 7  D 1         X
231 AID3    MSG  2171H1$3 PF-03 E
                 7  D 1         X
232 AID4    MSG  2171H1$7 PF-04 E
                 7  D 1 D       X
233 AID5    MSG  2171H1*G PF-05 E
                 7  D 1         X
234 AID6    MSG  2171H1*J PF-06 E
                 7  D 1         X
235 AID7    MSG  2171H1*$ PF-07 E
                 7  D 1         X
236 AID8    MSG  2171H1*V PF-08 E
                 7  D 1         X
237 AID9    MSG  2171H1*0 PF-09 E
                 7  D 1         X
```

```
238 AID10 MSG  2171H1*9 PF-10 E
                7  D 1         X
239 AID11 MSG  2171H1)C PF-11 E
                7  D 1         X
240 AID12 MSG  2171H1)( PF-12 E
                7  D 1         X
241 AID13 MSG  2171H1)P PA-01 E
                7  D 1         X
242 AID14 MSG  2171H1)/ PA-02 E
                7  D 1         X
243 AID15 MSG  2171H1), PA-03 E
                7  D 1         X
244 AID16 MSG  2171H1)5 CLEAR E
                7  D 1         X
245 AID17 MSG  2171H1!& R/TST E
                7  D 1         X
246 AID29 MSG  2171H1!R ENTER E
                7  D 1         X
247 AID30 MSG  SSS
               YYX
248 A1    OUT      AID30 01

249       OUT      AID29 01    SB EB

250       GOTO     SD3

251 A2    OUT      AID30 01

252       OUT      AID1  01    SB EB

253       GOTO     SD3

254 A3    OUT      AID30 01

255       OUT      AID2  01    SB EB

256       GOTO     SD3

257 A4    OUT      AID30 01

258       OUT      AID3  01    SB EB

259       GOTO     SD3

260 A5    OUT      AID30 01

261       OUT      AID4  01    SB EB

262       GOTO     SD3

263 A6    OUT      AID30 01

264       OUT      AID5  01    SB EB

265       GOTO     SD3

266 A7    OUT      AID30 01

267       OUT      AID6  01    SB EB
```

```
268         GOTO    SD3
269 A8      OUT     AID30 01
270         OUT     AID7  01    SB EB
271         GOTO    SD3
272 A9      OUT     AID30 01
273         OUT     AID8  01    SB EB
274         GOTO    SD3
275 A10     OUT     AID30 01
276         OUT     AID9  01    SB EB
277         GOTO    SD3
278 A11     OUT     AID30 01
279         OUT     AID10 01    SB EB
280         GOTO    SD3
281 A12     OUT     AID30 01
282         OUT     AID11 01    SB EB
283         GOTO    SD3
284 A13     OUT     AID30 01
285         OUT     AID12 01    SB EB
286         GOTO    SD3
287 A14     OUT     AID30 01
288         OUT     AID13 01    SB EB
289         GOTO    SD3
290 A15     OUT     AID30 01
291         OUT     AID14 01    SB EB
292         GOTO    SD3
293 A16     OUT     AID30 01
294         OUT     AID15 01    SB EB
295         GOTO    SD3
296 A17     OUT     AID30 01
297         OUT     AID16 01    SB EB
```

```
298         GOTO     SD3
299 A18     OUT      AID30 01
300         OUT      AID17 01     SB EB
301         GOTO     SD3
302 SDMES   GOSUB    SEL
303         SEMRK
304         TIME 8   OUTTR IF 00.010
305         RTMR 8
306         TIME 7   SD4   IF 00.010
307         GOTO     GOOD
308 GLOOP   RTMR 1
309         RTMR 8
310         GOTO     LOOP1
311 SLP3    RMRK INVALID RESP. TO SELECT
312         GOSUB    ALARM
313         GOTO     GLOOP
314 SSDTA   OUT      SPC   01
315         GOTO     GLOOP
316 GOOD    OUT      STMES 01
317         OUT      BMESS 01
318         RTMR 1
319         TSND
320 DERR    TIME 1   WRONG IF 01.000
321         SKIP 1
322         MATCH OR DERR  N
                           K
323         TIME 7   START IF 65.535
324         GOTO     SDMES
325 SD4     OUT      STMES 01
326         OUT      MES1  01     SB EB
327         WAIT
```

```
328         RTMR 7
329 SD3     TSND
330         SKIP 1
331         TIME 1    NGOOD IF 01.000
332         MATCH OR SD2    D
                            L
333         SKIP 1
334         MATCH OR SD5    ,
335 SD7     RTMR 1
336         RCTR 1
337         RTMR 8
338         GOTO      START
339 SD5     MATCH OR SD6    7
                            0
340         RMRK WRONG ACK RECEIVED
341         GOTO      SDMES
342 SD6     MATCH OR SD8    /
343         GOTO      SD7
344 SD2     MATCH OR SD3    E
                            T
345 SDNAK   RMRK TEXT MESSAGE NAKED
346         GOTO      SD7
347 SD8     RMRK INVALID RESP.TO TEXT DATA
348         GOTO      SDMES
349 WRONG   RMRK MESSAGE NOT NAKED
350         GOTO      SD7
351 SERR    RMRK TIMEOUT ON SELECT POLL
352         RTMR 1
353         GOSUB     ALARM
354         GOTO      START
355 LP10    SKIP 1
356         GOTO      LOOP6
357 NGOOD   RMRK NO RESPONSE TO TEXT DATA
```

```
358         GOTO     SD7
359 OUTTR   OUT      STMES 01
360         OUT      TREQM 01    SB EB
361         WAIT
362         RTMR 8
363         RTMR 1
364         GOTO     SD3
365 ALARM   ALRM
366         TIME 2   RSTAL IF 00.500
367         SKIP 1
368         GOTO     ALARM
369 RSTAL   RALRM
370         RTMR 2
371         RET
372 SEL     RCTR 1
373         OUT      SPOLL 01
374         RTMR 1
375         TSND
376 SEL1    TIME 1   SERR  IF 01.000
377         SKIP 1
378         MATCH OR SEL1  D
                           L
379         SKIP 1
380         MATCH OR SEL2  7
                           O
381         RET
382 SEL2    MATCH OR SEL3  @
383         GOTO     SSDTA
384 SEL3    MATCH OR SLP3  ,
385         RMRK WACK REC.TO SELECT
386         GOTO     SD7
387 GPOLL   MSG  SSEFFFSS  ""E
             YYTFFFYY     Q
```

```
388 SPOLL MSG  SSEFFFSS--  E
               YYTFFFYY    Q
389 SPC   MSG  SS    E
               YY    Q
390 RVI   MSG  SSD@
               YYL
391 ACK1  MSG  SSD/
               YYL
392 ACKO  MSG  SSD7
               YYLO
393 NAK   MSG  SSN
               YYK
394 STMES MSG  SSS
               YYX
395 BMESS MSG  257 BAD MESSAGE E
               7                X
396 TREQM MSG  2571 A1-1+L1Y SPECTRON1&2
               7  1  D 1  D          1
397            3270 TERMINAL    TEST1KB1
                                   1  D
398            -PROTECTED>11K; <1LK1-NUM
                          34    1  D
399            ERIC  >1&1L> 1-<1MS BLINK
                    D 4   D  1
400            ED  >1(1M= 1Y<1N2 INTENSI
                  D 4   D  1
401            FED>1H1O+ 1-<1PB MODIFIED
                 D 4   D  1
402            >1A1P; 1-<E
                D 4   D  X
403 MES1  MSG  2571 A1  *1(O1+" 1+L1HSPE
               7  1  4   1  4   1  D
404            CTRONE
                    X
```

2.18 PROGRAM DESCRIPTION

PROGRAM NAME: 3270MC

CONFIGURATION NAME: 3270MC

OBJECTIVE: Same as 3270M except that this program will support up to 10 327X-type controllers with up to 10 devices on each.

RESULTS:

This program can be used as an on-line demo or diagnostic routine.

Controller Address	= '40'	Device Address	= '40'
Controller Address	= 'C1'	Device Address	= 'C1'
Controller Address	= 'C2'	Device Address	= 'C2'
Controller Address	= 'C3'	Device Address	= 'C3'
Controller Address	= 'C4'	Device Address	= 'C4'
Controller Address	= 'C5'	Device Address	= 'C5'
Controller Address	= 'C6'	Device Address	= 'C6'
Controller Address	= 'C7'	Device Address	= 'C7'
Controller Address	= 'C8'	Device Address	= 'C8'
Controller Address	= 'C9'	Device Address	= 'C9'

DESCRIPTION: Delete SEQ steps 1, 2, and 3 from 3270M program. Insert 3270MC program listing as shown.

```
                PROGRAM LIST

NAME=3270MC   M=0392 MSG=3545  RMRK=0438

SEQ LABEL OPCODE     OPERAND

001       *
002       * THIS PRPGRAM WILL SUPPORT UP
003       * TO 10 327x TYPE CONTROLLERS
004       * WITH UP TO 10 DEVICES ON EAC
005       * H CONTROLLER
006       *
007       *
008       RCTR ALL
009       RTMR ALL
010 START TCTR 1   CONT1 IF 1
011       TCTR 1   CONT2 IF 2
012       TCTR 1   CONT3 IF 3
013       TCTR 1   CONT4 IF 4
014       TCTR 1   CONT5 IF 5
015       TCTR 1   CONT6 IF 6
016       TCTR 1   CONT7 IF 7
017       TCTR 1   CONT8 IF 8
018       TCTR 1   CONT9 IF 9
019 END   SCTR 1   0
020       RMC      GPOLL 9
021       RMC      GPOLL 10
022       RMC  -   SPOLL 9
023       RMC  -   SPOLL 10
024       RMC      SPC   3
025       RMC      SPC   4
026 GOUT  OUT      GPOLL 01
027       ICTR 1   END   IF 65535
```

```
028         GOTO      LOOP1
029 CONT1   RMC   A   GPOLL 9
030         RMC   A   GPOLL 10
031         RMC   /   SPOLL 9
032         RMC   /   SPOLL 10
033         RMC   A   SPC   3
034         RMC   A   SPC   4
035         GOTO      GOUT
036 CONT2   RMC   B   GPOLL 9
037         RMC   B   GPOLL 10
038         RMC   S   SPOLL 9
039         RMC   S   SPOLL 10
040         RMC   B   SPC   3
041         RMC   B   SPC   4
042         GOTO      GOUT
043 CONT3   RMC   C   GPOLL 9
044         RMC   C   GPOLL 10
045         RMC   T   SPOLL 9
046         RMC   T   SPOLL 10
047         RMC   C   SPC   3
048         RMC   C   SPC   4
049         GOTO      GOUT
050 CONT4   RMC   D   GPOLL 9
051         RMC   D   GPOLL 10
052         RMC   U   SPOLL 9
053         RMC   U   SPOLL 10
054         RMC   D   SPC   3
055         RMC   D   SPC   4
056         GOTO      GOUT
057 CONT5   RMC   E   GPOLL 9
```

```
058         RMC  E   GPOLL 10
059         RMC  V   SPOLL 9
060         RMC  V   SPOLL 10
061         RMC  E   SPC   3
062         RMC  E   SPC   4
063         GOTO     GOUT
064 CONT6   RMC  F   GPOLL 9
065         RMC  F   GPOLL 10
066         RMC  W   SPOLL 9
067         RMC  W   SPOLL 10
068         RMC  F   SPC   3
069         RMC  F   SPC   4
070         GOTO     GOUT
071 CONT7   RMC  G   GPOLL 9
072         RMC  G   GPOLL 10
073         RMC  X   SPOLL 9
074         RMC  X   SPOLL 10
075         RMC  G   SPC   3
076         RMC  G   SPC   4
077         GOTO     GOUT
078 CONT8   RMC  H   GPOLL 9
079         RMC  H   GPOLL 10
080         RMC  Y   SPOLL 9
081         RMC  Y   SPOLL 10
082         RMC  H   SPC   3
083         RMC  H   SPC   4
084         GOTO     GOUT
085 CONT9   RMC  I   GPOLL 9
086         RMC  I   GPOLL 10
087         RMC  Z   SPOLL 9
```

```
088         RMC  Z    SPOLL 10
089         RMC  I    SPC   3
090         RMC  I    SPC   4
091         GOTO      GOUT
092 LOOP1   TSND
093         TIME 1    GERR  IF 00.500
094         SKIP 1
095         MATCH OR TEXT1 E
                           T
096         GOTO      NTCT
097 TEXT1   MATCH OR TEXT2 S
                           H
098         GOTO      SS
099 TEXT2   MATCH OR TEXT3 S
                           X
100         GOTO      INMES
101 TEXT3   MATCH OR LOOP1 E
                           Q
102         GOTO      START
103 NTCT    TSIG 4    SEND  IF H
104         RTMR 1
105         GOTO      START
106 SEND    TCTR 4    SDMES IF O
107         RCTR 1
108         GOTO      START
109 GERR    RMRK GEN.POLL TIMEOUT
110         RTMR 1
111         GOTO      START
112 SS      SKIP 1
113         SEMRK
114         SBCC
115         MATCH OR TREQ  %R
116         SKIP 4
117         STCK 02
```

```
118         MATCH OR SSERR E
                           X
119         SKIP 3
120         SEMRK
121         TBCC      INC
122         RCTR 5
123         MSTCK GO INV     A
124         MSTCK GO DVC     &
125         MSTCK GO CNV     -
126         MSTCK GO DVB    H
127         MSTCK GO FDVB   HA
128         MSTCK GO FDVA    J
129         MSTCK GO LB     DA
130         MSTCK GO DVNB   B
131         MSTCK GO PRTO   B&
132         MSTCK GO ITE     B
133         MSTCK GO BFA     D
134         MSTCK GO BCC    A
135 SSERR RMRK INVALID S&S RECEIVED
136 ELOOP GOSUB     ALARM
137         OUT       RVI    01
138         RTMR 1
139         GOTO      LOOP1
140 INV   RMRK S&S REC. INVALID COMMAND
141         GOTO      ELOOP
142 DVC   RMRK S&S REC.DEVICE UNAVAIL.
143         GOTO      ELOOP
144 CNV   RMRK S&S REC.CMD. NOT VALID
145         GOTO      ELOOP
146 DVB   RMRK S&S REC. DEVICE BUSY
147         SCTR 4    1
```

```
148         GOTO      ELOOP
149 FDVB    RMRK S&S REC. FROM DEVICE BUSY
150         GOTO      ELOOP
151 FDVA    RMRK S&S REC. FROM DEVICE UNAV
152         GOTO      ELOOP
153 LB      RMRK S&S REC. LOCKED BUFFER
154         GOTO      ELOOP
155 DVNB    RMRK S&S REC. DEVICE NO LONGER
156         RCTR 4
157         GOTO      ELOOP
158 PRTO    RMRK S&S REC.PRINTER OUT
159         GOTO      ELOOP
160 ITE     RMRK S&S REC.INTERNAL TIME ERR
161         GOTO      ELOOP
162 BFA     RMRK S&S REC.BLOCK FORWARD ABT
163         GOTO      ELOOP
164 BCC     RMRK S&S REC.BCC ERROR
165         GOTO      ELOOP
166 TERR    GOTO      SSERR
167 INC     ICTR 5    TOO    IF 7
168         OUT       NAK    01
169         GOTO      LOOP1
170 TOO     RMRK 7 S&S REC. WITH BAD BCC
171         RCTR 5
172         GOTO      START
173 TREQ    MATCH OR TRQER /
174 CHK2    SKIP 1
175         MATCH OR CHK2  E
                           X
176         SKIP 3
177         TBCC      INC
```

```
178         OUT       ACK1  01
179         TIME 8    START IF 65.535
180         TSND
181         FIND E
                T
182         GOTO      SDMES
183 TRQER   SKIP 1
184         MATCH OR  TRQER E
                            X
185         GOTO      SSERR
186 INMES   RCTR 2
187         RCTR 1
188         RTMR 1
189         SKIP 1
190         SEMRK
191         SBCC
192         SKIP 1
193         STCK 01
194         MSTCK GO  ADDR1 A
195         MSTCK GO  ADDR2 B
196         MSTCK GO  ADDR3 C
197         MSTCK GO  ADDR4 D
198         MSTCK GO  ADDR5 E
199         MSTCK GO  ADDR6 F
200         MSTCK GO  ADDR7 G
201         MSTCK GO  ADDR8 H
202         MSTCK GO  ADDR9 I
203         RMC       SPOLL 11
204         RMC       SPOLL 12
205         GOTO      GO
206 ADDR1   RMC   A   SPOLL 11
207         RMC   A   SPOLL 12
```

```
208         GOTO     GO
209 ADDR2   RMC  B   SPOLL 11
210         RMC  B   SPOLL 12
211         GOTO     GO
212 ADDR3   RMC  C   SPOLL 11
213         RMC  C   SPOLL 12
214         GOTO     GO
215 ADDR4   RMC  D   SPOLL 11
216         RMC  D   SPOLL 12
217         GOTO     GO
218 ADDR5   RMC  E   SPOLL 11
219         RMC  E   SPOLL 12
220         GOTO     GO
221 ADDR6   RMC  F   SPOLL 11
222         RMC  F   SPOLL 12
223         GOTO     GO
224 ADDR7   RMC  G   SPOLL 11
225         RMC  G   SPOLL 12
226         GOTO     GO
227 ADDR8   RMC  H   SPOLL 11
228         RMC  H   SPOLL 12
229         GOTO     GO
230 ADDR9   RMC  I   SPOLL 11
231         RMC  I   SPOLL 12
232 GO      SEMRK
233         TCTR 7   LOOP6 IF 1
234         STCK 01
235 LOOP6   MATCH OR LOOP2 1
                           7
236         SCTR 7   1
237         SKIP 3
```

```
238         TBCC      NAK1
239         RCTR 6
240         GOTO      LOOP4
241 LOOP2   MATCH OR LOOP3 E
                          X
242         SKIP 3
243         SEMRK
244         TBCC      NAK1
245         RCTR 6
246         TCTR 7    FLRST IF 1
247         OUT       ACK1  01
248 LP11    TSND
249         FIND E
                      T
250         SEMRK
251         RCTR 7
252         GOSUB     SEL
253         GOTO      AID
254 FLRST   SCTR 7    2
255         GOTO      LOOP4
256 LOOP3   ICTR 2    LONG  IF 256
257         GOTO      LOOP7
258 LOOP4   TCTR 8    LOOP5 IF 1
259         OUT       ACK1  01
260         SCTR 8    1
261         TCTR 7    LP11  IF 2
262         GOTO      LOOP1
263 LOOP5   RCTR 8
264         OUT       ACK0  01
265         TCTR 7    LP11  IF 2
266         GOTO      LOOP1
267 NAK1    ICTR 6    ERR   IF 7
```

```
268 NAK2  OUT      NAK   01
269       GOTO     LOOP1
270 LONG  RMRK MESS. REC.>256 CHARS.
271       GOSUB    ALARM
272       GOTO     NAK2
273 ERR   RMRK BAD BCC REC. 7 TIMES
274       GOSUB    ALARM
275       GOTO     START
276 LOOP7 MATCH OR LP10  E
                         Q
277       RMRK DATA CHECK FROM TERMINAL
278       GOTO     NAK1
279 AID   MSTCK GO A1    7
                         D
280       MSTCK GO A2    1
281       MSTCK GO A3    2
282       MSTCK GO A4    3
283       MSTCK GO A5    4
284       MSTCK GO A6    5
285       MSTCK GO A7    6
286       MSTCK GO A8    7
287       MSTCK GO A9    8
288       MSTCK GO A10   9
289       MSTCK GO A11   :
290       MSTCK GO A12   #
291       MSTCK GO A13   @
292       MSTCK GO A14   %
293       MSTCK GO A15   >
294       MSTCK GO A16   ,
295       MSTCK GO A17   6
                         D
296       MSTCK GO A18   0
297       RMRK UNDEFINED AID KEY REC.
```

```
298         GOTO      START

299 AID1    MSG   2171H1$- PF-01 E
                  7  D 1         X
300 AID2    MSG   2171H1$Z PF-02 E
                  7  D 1         X
301 AID3    MSG   2171H1$3 PF-03 E
                  7  D 1         X
302 AID4    MSG   2171H1$7 PF-04 E
                  7  D 1 D       X
303 AID5    MSG   2171H1*G PF-05 E
                  7  D 1         X
304 AID6    MSG   2171H1*J PF-06 E
                  7  D 1         X
305 AID7    MSG   2171H1*$ PF-07 E
                  7  D 1         X
306 AID8    MSG   2171H1*V PF-08 E
                  7  D 1         X
307 AID9    MSG   2171H1*0 PF-09 E
                  7  D 1         X
308 AID10 MSG   2171H1*9 PF-10 E
                  7  D 1         X
309 AID11 MSG   2171H1)C PF-11 E
                  7  D 1         X
310 AID12 MSG   2171H1)( PF-12 E
                  7  D 1         X
311 AID13 MSG   2171H1)P PA-01 E
                  7  D 1         X
312 AID14 MSG   2171H1)/ PA-02 E
                  7  D 1         X
313 AID15 MSG   2171H1), PA-03 E
                  7  D 1         X
314 AID16 MSG   2171H1)5 CLEAR E
                  7  D 1         X
315 AID17 MSG   2171H1!& R/TST E
                  7  D 1         X
316 AID29 MSG   2171H1!R ENTER E
                  7  D 1         X
317 AID30 MSG   SSS
                YYX
318 A1      OUT       AID30 01

319         OUT       AID29 01     SB EB

320         GOTO      SD3

321 A2      OUT       AID30 01

322         OUT       AID1  01     SB EB

323         GOTO      SD3

324 A3      OUT       AID30 01

325         OUT       AID2  01     SB EB

326         GOTO      SD3

327 A4      OUT       AID30 01
```

```
328         OUT       AID3  01     SB EB
329         GOTO      SD3
330 A5      OUT       AID30 01
331         OUT       AID4  01     SB EB
332         GOTO      SD3
333 A6      OUT       AID30 01
334         OUT       AID5  01     SB EB
335         GOTO      SD3
336 A7      OUT       AID30 01
337         OUT       AID6  01     SB EB
338         GOTO      SD3
339 A8      OUT       AID30 01
340         OUT       AID7  01     SB EB
341         GOTO      SD3
342 A9      OUT       AID30 01
343         OUT       AID8  01     SB EB
344         GOTO      SD3
345 A10     OUT       AID30 01
346         OUT       AID9  01     SB EB
347         GOTO      SD3
348 A11     OUT       AID30 01
349         OUT       AID10 01     SB EB
350         GOTO      SD3
351 A12     OUT       AID30 01
352         OUT       AID11 01     SB EB
353         GOTO      SD3
354 A13     OUT       AID30 01
355         OUT       AID12 01     SB EB
356         GOTO      SD3
357 A14     OUT       AID30 01
```

```
358         OUT       AID13 01     SB EB
359         GOTO      SD3
360 A15     OUT       AID30 01
361         OUT       AID14 01     SB EB
362         GOTO      SD3
363 A16     OUT       AID30 01
364         OUT       AID15 01     SB EB
365         GOTO      SD3
366 A17     OUT       AID30 01
367         OUT       AID16 01     SB EB
368         GOTO      SD3
369 A18     OUT       AID30 01
370         OUT       AID17 01     SB EB
371         GOTO      SD3
372 SDMES   GOSUB     SEL
373         SEMRK
374         TIME 8    OUTTR IF 00.010
375         RTMR 8
376         TIME 7    SD4    IF 00.010
377         GOTO      GOOD
378 GLOOP   RTMR 1
379         RTMR 8
380         GOTO      LOOP1
381 SLP3    RMRK INVALID RESP. TO SELECT
382         GOSUB     ALARM
383         GOTO      GLOOP
384 SSDTA   OUT       SPC    01
385         GOTO      GLOOP
386 GOOD    OUT       STMES 01
387         OUT       BMESS 01
```

```
388         RTMR 1
389         TSND
390 DERR    TIME 1    WRONG IF 01.000
391         SKIP 1
392         MATCH OR DERR  N
                           K
393         TIME 7    START IF 65.535
394         GOTO      SDMES
395 SD4     OUT       STMES 01
396         OUT       MES1  01     SB EB
397         WAIT
398         RTMR 7
399 SD3     TSND
400         SKIP 1
401         TIME 1    NGOOD IF 01.000
402         MATCH OR SD2   D
                           L
403         SKIP 1
404         MATCH OR SD5   ,
405 SD7     RTMR 1
406         RCTR 1
407         RTMR 8
408         GOTO      START
409 SD5     MATCH OR SD6   7
                           0
410         RMRK WRONG ACK RECEIVED
411         GOTO      SDMES
412 SD6     MATCH OR SD8   /
413         GOTO      SD7
414 SD2     MATCH OR SD3   E
                           T
415 SDNAK   RMRK TEXT MESSAGE NAKED
416         GOTO      SD7
417 SD8     RMRK INVALID RESP.TO TEXT DATA
```

```
418         GOTO      SDMES
419 WRONG   RMRK MESSAGE NOT NAKED
420         GOTO      SD7
421 SERR    RMRK TIMEOUT ON SELECT POLL
422         RTMR 1
423         GOSUB     ALARM
424         GOTO      START
425 LP10    SKIP 1
426         GOTO      LOOP6
427 NGOOD   RMRK NO RESPONSE TO TEXT DATA
428         GOTO      SD7
429 OUTTR   OUT       STMES 01
430         OUT       TREQM 01     SB EB
431         WAIT
432         RTMR 8
433         RTMR 1
434         GOTO      SD3
435 ALARM   ALRM
436         TIME 2    RSTAL IF 00.500
437         SKIP 1
438         GOTO      ALARM
439 RSTAL   RALRM
440         RTMR 2
441         RET
442 SEL     RCTR 1
443         OUT       SPOLL 01
444         RTMR 1
445         TSND
446 SEL1    TIME 1    SERR   IF 01.000
447         SKIP 1
```

```
448         MATCH OR SEL1  D
                           L
449         SKIP 1

450         MATCH OR SEL2  7
                           0
451         RET

452 SEL2    MATCH OR SEL3  @

453         GOTO     SSDTA

454 SEL3    MATCH OR SLP3  ,

455         RMRK WACK REC.TO SELECT

456         GOTO     SD7

457 GPOLL   MSG   SSEFFFSS  ""E
                  YYTFFFYY    Q
458 SPOLL   MSG   SSEFFFSS--  E
                  YYTFFFYY    Q
459 SPC     MSG   SS    E
                  YY    Q
460 RVI     MSG   SSD@
                  YYL
461 ACK1    MSG   SSD/
                  YYL
462 ACK0    MSG   SSD7
                  YYL0
463 NAK     MSG   SSN
                  YYK
464 STMES   MSG   SSS
                  YYX
465 BMESS   MSG   257 BAD MESSAGE E
                  7                X
466 TREQM   MSG   2571 A1-1+L1Y SPECTRON1&2
                  7  1  D 1  D          1
467               3270 TERMINAL    TEST1KB1
                                      1  D
468               -PROTECTED>11K; <1LK1-NUM
                                34    1  D
469               ERIC  >1&1L> 1-<1MS BLINK
                         D 4   D  1
470               ED  >1(1M= 1Y<1N2 INTENSI
                       D 4   D  1
471               FED>1H1O+ 1-<1PB MODIFIED
                      D 4   D  1
472               >1A1P; 1-<E
                   D 4   D  X
473 MES1    MSG   2571 A1  *1(01+" 1+L1HSPE
                  7  1  4   1  4   1  D
474               CTRONE
                        X
```